

DEFORMATION AND ANNEALING STUDY

OF NiCrAlY

by

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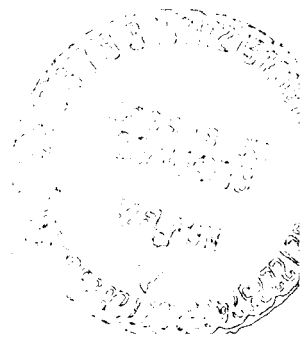
CONCLUDING REPORT

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ABSTRACT

The portion of the total study reported upon herein was concerned with the evaluation and optimization of the elevated temperature properties (tensile and creep) of NiCrAlY, a nickel base alloy containing nominally 16% chromium, 4% aluminum, and 2-3% yttria (Y_2O_3). Recognizing that the optimal grain conformation for creep resistance included both a large average grain diameter and a high aspect ratio, and further that a cold working capability for the material was highly desirable, the efforts were directed towards finding the optimal combination of thermomechanical treatments for maximum creep resistance.

The results indicated that there was sufficient stored strain energy in the as-extruded bars (14:1 extrusion ratio) to permit the development of a large grain size in the material when it was annealed at the maximum safe temperature 2450°F (1343°C). With a one-hour anneal at this temperature, the relatively fine grain size of the as-extruded material was changed to one in which the average grain diameter approached 1 mm, and the aspect ratio was about 10. The high temperature tensile properties and creep (and rupture) resistance of this material was excellent at 2000°F (1093°C), the rupture time at a stress level of 10,000 psi (70MPa) being well in excess of 450 hours.

It was found that the material with the treatment cited above was capable of being cold worked (by rolling) in amounts greater than 30% reduction in area, the cold working enhancing the aspect ratio of the material. It was found, further, that if the cold worked material was given a relaxation treatment, consisting of heating one hour at 1600°F (871°C), and then a high temperature anneal at 2450°F (1343°C) for one hour, both the high temperature strength and the high temperature creep resistance of the material was further enhanced. For example, for creep conditions consisting of an applied stress of 12,000 PSI (83 MPa) and a temperature of 2000°F (1093°C), the combination of the added cold work and the subsequent two-step thermal treatment increased the rupture life 10-fold, and reduced the steady state creep rate 20-fold.

FOREWORD

This report constitutes the concluding disclosure of the results of an extensive research activity on creep and oxidation resistant nickel-base ODS alloys. The activity has been particularly rewarding in that very important results, of both a fundamental and a practical nature, have been achieved. Among the most significant of the fundamental developments have been the complete rationale for the previously misunderstood anomalous recrystallization mechanism of ODS nickel (TD-Nickel) and the development of methods by which it could be controlled, a new theory for the strengthening effects of the dispersoid phase in ODS alloys, as well as others.

From the practical, or engineering, point of view, the work has yielded important creep and rupture data for the last several generations of ODS alloys --- TD-Nickel, TD-Nichrome, and NiCrAlY. But even more importantly, the work has shown that the ODS alloys, including NiCrAlY, can be cold formed, and that any deleterious side-effects of the cold work (such as recrystallization to small grain sizes) can be avoided completely by the addition of a low temperature relaxation thermal treatment after the cold forming. Indeed, the very last finding of the work, which is reported upon herein, shows that the use of this new thermomechanical processing schedule (cold work plus a two-step thermal treatment) can bring about ten-fold increases in the already excellent creep properties of NiCrAlY.

From all points of view, the results of the work supported by Grant No. NGR 36-003-094 and its predecessor constitute major contributions to both the scientific and engineering communities.

----- Lynn J. Ebert
Project Director
15 October 1978

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BACKGROUND OF THE WORK

Dispersion strengthened alloys are those which derive their unique mechanical properties from a fine uniform dispersion of particles in a metallic matrix which, by itself, has good high temperature properties. The matrices of the early alloys of this kind were essentially single metals or simple solid solution alloys. Recently, however, more highly alloyed matrices combining several elements to provide precipitation strengthening in addition to the dispersion strengthening have been produced.⁽¹⁾ The finely dispersed phase is usually chemically inert as regards the matrix; it is often refractory or ceramic in nature to insure chemical and mechanical stability at high use temperatures.

The forerunners of these materials have been the sintered aluminum powder alloys (SAP) which have a fine dispersion of alumina (Al_2O_3) in an aluminum or aluminum alloy matrix. Development of later generations of the alloys has been concentrated on the dispersion strengthening of higher melting temperature matrix material.

The first dispersion strengthened alloy of the modern series of dispersion strengthened alloys was "TD Nickel", or TDNi, which is a nickel-base alloy containing a fine dispersion of thoria, about 2% by volume. This material had a usable strength at temperatures in excess of 1090°C (2000°F), but the poor oxidation resistance of the pure nickel matrix prevented its use in oxidizing environments.

To improve the oxidation resistance of the thoriated nickel, chromium was added to the nickel matrix in amounts great enough to form a protective $\text{Cr}_x\text{Ni}_y\text{O}_z$ film, while still retaining the single phase nature of the matrix. The resultant alloy, termed T.D. Nickel Chromium (TDNiCr), had good oxidation resistance in static hot air, but poor resistance in high velocity flowing hot air.

To overcome the poor high velocity air oxidation resistance of the TDNiCr, the nickel base was further alloyed with aluminum, and the thoria dispersoid phase was replaced with yttria, Y_2O_3 . This alloy, containing nominally 16% Cr, 4% Al, 2-3% Y_2O_3 , balance nickel, and termed NiCrAlY, appeared to meet all the oxidation resistance requirements of the high temperature applications, while still retaining excellent high temperature creep and rupture resistance. NiCrAlY alloys derive their oxidation resistance from the formation of aluminum sesquioxide, Al_2O_3 , which is more stable than Cr_2O_3 (in TDNiCr) in high velocity gas streams.⁽²⁾ Nickel base superalloys (those with further alloy additions besides chromium, such as NiCrAl, FeCrAl, or CoCrAl), with dispersion strengthening are used in applications where the temperature ranges between 600° and 1000°C. The upper usable temperature limit for TDNi and thoria dispersion strengthened and corrosion resistant NiCrAl, FeCrAl, and CoCrAl alloys is 1150°C. The contemplated temperature limit of the yttria dispersion strengthened superalloys such as NiCrAlY is also about 1150°C or higher.⁽³⁾

The grant for which this report constitutes the final disclosure of research results was initiated for the purpose of developing methods with which to optimize the high temperature utility of the ODS alloys; no attempt has been made to enter the alloy development phase of these high temperature materials. The work has included an assessment of the factors affecting the high temperature properties of TD-Nickel, the generation of an understanding of the (previously anomolous) recrystallization characteristics of TD-Nickel, the development of methods of controlling the grain size and grain shape of TD-Nickel and TD-Nichrome, the creation of a unified theory for the strengthening effects of the dispersoid phase in ODS alloys, and the production of creep and rupture data on TD-Nichrome.

The specific work reported herein includes the full annealing study of NiCrAlY, the results of the (successful) effort to cold work the material (to demonstrate its ability to be formed into at least simple airfoil shapes), and the development of a unique and novel processing schedule which permits the cold forming of the NiCrAlY material and subsequent use of the material at very high temperatures without the loss of the favorable large grain size through recrystallization of the cold worked material. At the same time, creep and rupture data are reported for both the (large grain size) material as-extruded and annealed, as well limited data for the specially processed cold worked NiCrAlY.

Recrystallization of TDNi and TDNiCr

The recrystallization nature of dispersion strengthened TDNi and TDNiCr was investigated and reported in the previous research.^{4,5,6,7} These characteristics are important in the optimization of thermomechanical treatments of NiCrAlY for its use at high temperatures, because of the high dependence of creep and rupture resistance on grain size and shape.

In sintered aluminum powder alloys, it has been shown that the normal recrystallization behavior of the aluminum matrix can be significantly affected by the presence of the alumina dispersion in the matrix⁽⁸⁾. After annealing, the dispersoid phase tends to retard recrystallization, promoting a coarse grain, nonequiaxed structure. The recrystallization behavior of thoria dispersed nickel, TDNi, has been found to vary greatly, depending on processing history, and dispersoid size and distribution in the matrix. The mean particle size and uniformity of distribution are important variables in the annealing response of the material, as reported by Wilcox and Clauer.⁽⁹⁾ The nature and the amount of prior deformation changed the recrystallization response as demonstrated by Doble, who studies both transverse and longitudinal rolling, as well as swaging.⁽¹⁰⁾

Doble found that an unusual recrystallization response would occur in TDNi after transverse rolling and annealing. Increases in grain size of 500 times were not uncommon following such treatment. The work of Petrovic explained the coarse grain transformation in TDNi in terms of abnormal grain growth which followed very quickly after classical recrystallization.⁽⁵⁾

It was the pioneering discoveries of Petrovic, and the later developments of Kane, which formed the basis for the treatments which have been used successfully to produce the large grains which have enhanced the creep resistance of the ODS alloys.^(6,7)

Annealing, Recrystallization, and Grain Growth in NiCrAlY

Because of the importance of grain size and shape in dictating high temperature performance of alloys, much concern has centered on the annealing and grain growth response of the superalloys, including those which are dispersion strengthened. Most of the studies completed previously have dealt with the manner in which the characteristics of the dispersed phase affects the recrystallization and grain growth mechanism.

The dispersion strengthened alloys are most commonly made by hot extrusion of "canned" mechanically alloyed powders of the required composition. Hence, the extrusion parameters (temperature and reduction ratio) have a marked influence on the grain size and shape of the extruded product as well as on the grain size and shape resulting from further processing of the extrusion.

The mechanical alloying process^(1,11) has been related to the phenomenon of cold welding, a process used to join metals on the macroscopic scale. Mechanical alloying is a high energy, dry milling technique through which composite particles may be produced containing a fine and homogeneous dispersion of Y_2O_3 in a precipitation hardenable (if γ' is precipitated) oxidation resistant, nickel matrix. The Y_2O_3 dispersoid is prepared by calcination of yttrium oxalate⁽¹²⁾.

It has been found that for hot extruded IN-853 (an alloy containing 19%Cr, 1.2% Al, 2.4% Ti, 0.07% Zr, 0.007% B, and balance Ni with 2.25% Y_2O_3), the annealing effects of the material cause it to resist grain growth at temperatures up to about 1035°C (1900°F). Annealing at tempera-

tures between 1035°C and 1230°C (2250°F) causes slight grain growth; near 1260°C (2300°F), rapid grain growth occurs.⁽¹³⁾ This material resembles a NiCrAlY type alloy in its annealing response, although the amount of aluminum is lower, and both titanium and excess chromium are present. NiCrAlY is somewhat impervious to annealing effects until the annealing temperatures exceed 1090°C (2000°F).

Upon annealing at temperatures below critical temperature, the annealing affected the movement of dislocations to grain boundaries in the very fine grained as-extruded material. This recovery anneal virtually eliminates the grain coarsening response in IN-853, in that the removal of nucleation sites reduced the driving force for grain growth.

In NiCrAlY as well as in this alloy (IN-853), and other products with a nominal composition of $\text{Ni}_{16}\text{Cr}_4\text{AlY}_2\text{O}_3$, recrystallization can be made to occur after extrusion, and the fine grain size increases with increasing extrusion temperature⁽¹⁴⁾. After extrusion, the deformation substructure is pinned by the dispersoid particles and resists being swept away by the recrystallization process. The introduction of cold work into the extruded material greatly increases the level of stored strain energy which constitutes the driving force for grain growth in the material. In the as-extruded material, the structure recrystallizes with high angle grain boundaries and still has a high dislocation content in the fine-grained structure.⁽¹⁵⁾

It has been seen in dispersion strengthened alloys, especially those created by the mechanical alloying process, that the grain growth process is affected by the entire processing history, including the

mechanical alloying process.

In work on Inconel IN-853, grain size and aspect ratio can be increased by using a moving hot zone to accomplish grain growth. In this process, it was noted that alloys were resistant to recrystallization unless sufficient deformation energy from thermo-mechanical processing was stored in the substructure to overcome barriers to grain growth.⁽¹⁶⁾ It appears that the zone annealing process can be applied to a wide range of dispersion strengthened alloy compositions to create elongated grain structures.

It has been found for many oxide dispersion strengthened materials, that a large grain size and large aspect ratio (Length/Diameter or L/D) are greatly favored because of the enhanced elevated temperature tensile and creep strength which they impart to the alloys. It appears that the high temperature strength of oxide dispersion strengthened materials is limited by the effects of grain boundary sliding and the rupture of transverse grain boundary segments. It has been observed, however, that the high temperature properties are improved by annealing the as-extruded material at high temperatures (usually near its melting range), to allow for large grain growth.

Many of these alloys with appreciable amounts of aluminum or titanium derive their strength from the precipitation of an ordered gamma prime phase⁽¹⁷⁾. This phase is usually $\text{Ni}_3(\text{Ti}, \text{Al})$, and it precipitates coherently in the face-centered-cubic matrix. In addition, the

uniform dispersion of the yttria particles acts to pin the existing grain boundaries and homogenize the deformation substructure resulting from previous processing. The material is, therefore, extremely resistant to ordinary recrystallization. As a result, few locations with a sufficient energy gradient are left to promote grain boundary movement and grain growth. The high temperature properties are governed by dislocation motion and grain boundary sliding. At grain aspect ratios less than 6.0, the 1035°C (1900°F) rupture strength was controlled by grain geometry, while at higher temperature values, the rupture strength was directly influenced by dispersoid parameters.⁽¹²⁾

It has been found that, if τ_e = strength at $L/D = 1$ for equiaxed grains, and K = constant defined as the grain aspect ratio coefficient, the yield strength, τ , and creep strength increase linearly with increasing L/D , according to the following relation:⁽⁹⁾

$$\tau = \tau_e + K(L/D-1).$$

This emphasizes the importance of grain boundary sliding and its attendant requirement of long grains with high aspect ratios.

The dispersion strengthened alloys derive additional strength from the dislocation substructure introduced into these alloys during their thermo-mechanical processing.⁽³⁾

Summing up these theories, the overall steady state creep rate of an alloy at high temperature and strain rate, $\dot{\epsilon}_s$, is due to diffusional creep, $\dot{\epsilon}_{diff}$, grain boundary sliding, $\dot{\epsilon}_{gbs}$, and dislocation creep, $\dot{\epsilon}_{disl}$, or:

$$\dot{\epsilon}_s = \dot{\epsilon}_{diff} + \dot{\epsilon}_{gbs} + \dot{\epsilon}_{disl}.$$

At relatively low temperatures, oxide dispersion strengthened alloys exhibit activation energies typical of those of self diffusion. This would indicate a mechanism of dislocation motion.

In work on TDNiCr, the elevated temperature yield and tensile strength showed a sensitivity to grain size, with both increasing in strength as grain size increased⁽⁶⁾. In oxide dispersion strengthened super-alloys, the effects of increased grain aspect ratio was seen in increasing creep rupture life⁽¹²⁾. The mechanism of deformation, whether grain boundary sliding or some other form, is obviously dependent on the direction of loading with respect to the grain dimensions, i.e., whether it was parallel or perpendicular to the direction of the largest grain dimension. This would, of course, affect the strength levels obtained.

Goals of the Present Portion of the Total Program

The overall goals of the present study involved the control of the high temperature creep and rupture properties of $\text{Ni16Cr4AlY}_2\text{O}_3$ material through the control of its grain size and shape. The control of the grain size and shape was sought through the use of various combinations of cold working and subsequent thermal treatments. At the same time, the studies were aimed at finding methods by which the material could be cold-formed to shapes closer to that finished usable component than the form of the "raw" extrusion for obvious reasons of economy.

The work reported upon herein is that which shows the degree to which the grain size and shape can be controlled by the judicious use of combinations of cold working and subsequent thermal treatment. It further demonstrates the high temperature stability of the microstructures developed and the superior creep resistance which they give to the alloy.

MATERIALS AND PROCEDURES

The ODS Alloys

The material used in this study was a nickel-base alloy containing nominally 16% chromium, 4% aluminum, and 2-3% yttria (Y_2O_3). The material was made by mechanically attritting powders of the above nominal composition, canning the attritted powder in an evacuated steel cylinder, and hot extruding at a temperature of about 1038°C (1900°F). The extruded material in form of bars 6.35 cm. (2.5 inches) wide, 1.905 cm. (0.75 inches) thick, and 60.96 cm. (24 inches) long (as delivered), were procured from the Stellite Division of Cabot Corporation. Because of certain delays in receiving sufficient supplies of the hot extruded material earlier in the study, it was necessary to use bars from three different powder batches in the NiCrAlY study. The preliminary work on these three batches of material has been reported earlier.⁽¹⁸⁾ The chemical compositions of the three different batches are as listed on Table 1.

The material made from powder batch 204B was the preferred material and hence was the primary material used in the present portion of the study.

The material was supplied in the "as-hot-extruded" condition, with the extrusion being carried out with a 14.14:1 extrusion ratio at 1038°C (1900°F). Material was provided in bar form, with the dimensions as

listed below:

Powder Batch 204B; 1 piece,

3/4" x 2-1/2" x 24" long

The long dimension of the bar was parallel to the extrusion direction as shown in Figure 1.

Rolling Deformation Study

Cold rolling was carried out on a Fenn 2-high 75 H.P. mill, equipped with 10-inch diameter rolls. Preliminary rolling samples of various thickness and sizes were used to conserve the material which was to be machined later into tensile test samples.

All material was annealed prior to rolling, at 1343°C (2450°F) for one hour in a dry argon atmosphere, and then air cooled. This annealing treatment provided chemical homogenization, and softened the material to allow maximum cold working. It also promoted substantial grain growth, providing a large starting grain size for the cold work processing.

As was true for previous lots of NiCrAlY, the 204B material proved to be quite resistant to cold rolling. The material allowed an average of about 30 percent cold work before cracking, although inhomogeneities in it permitted rolling reductions as high as 50 percent and as low as 20 percent in some portions of the extrusion before the rolling block cracked.

On the basis of work on earlier lots of the NiCrAlY, rolling in the longitudinal direction only was undertaken.

As regards specific procedures, specimens were cut off the bar stock on a large abrasive cut off wheel, into 7 cm. (2.75") lengths. They were then cut longitudinally down the center into 3.8 cm. (1.5") x 7 cm. (2.75") x 1.9 cm. (0.75") pieces. When these pieces were rolled,

they proved to be quite susceptible to cracking on the rolling mill available for use. The size of the rolling blanks was then reduced by various machining operations into pieces with dimensions of approximately 0.95 cm. (0.375") x 7 cm. (2.75") x 3.8 cm (1.5"). These blanks were prepared for rolling by machining the rolling surfaces parallel to each other, to avoid non-uniform deformation. All surfaces and corners were dressed with 320 mesh emery paper to remove any sharp edges.

Specimens were reduced approximately by 10 percent in thickness per pass on the rolling mill. As the desired thickness was approached, reduction per pass decreased to 5% for the last few passes. All specimens were turned end-for-end and rotated 180° between succeeding passes to minimize any curvature resulting from the rolling. Rolling was halted when the specimen developed side cracks or split.

Annealing

Annealing of the smaller specimens was carried out in a ceramic tube, glow-bar type furnace. The temperature was controlled to $\pm 2.8^{\circ}\text{C}$ (5°F). Dried argon was used as the annealing atmosphere, and no observable surface oxidation occurred. Time for heating from ambient to the furnace temperature was very short because of the small specimen sizes.

Therefore, annealing times were measured from the time of specimen insertion into the furnace.

Annealing was carried out at temperatures ranging from 538°C (1000°F) to 1366°C (2490°F), at times varying from 30 minutes to 24 hours.

Metallographic Preparation

The air cooling of annealed specimens yielded specimens covered with a very thin light gray film which could be removed with fine abrasive paper. These specimens were cleaned, metallographically polished, and etched. The specimens were usually mounted in lucite or quickmount liquid plastic prior to polishing.

Standard metallographic polishing techniques were used for sample preparation. They consisted of grinding and polishing with emery paper, and used final polishing on 0.3 and 0.06 micron alumina impregnated micro-cloth wheels.

Several etching techniques were used to reveal different characteristics of grain structure with varying degrees of success. For macro-etching purposes, a chemical etch was used. It consisted of one part of chromic acid and three parts of hydrochloric acid. For higher magnification examination, electrolytic etching procedures were more effective, delineating grain structure quite well, whereas the chemical etch provided

excellent contrast under polarized light. One electrolytic etch consisted of seven parts methanol, four parts glycerine, and one part nitric acid. The other etch which proved to be the more useful, consisted of 33% nitric acid, 33% acetic acid, 33% water, and 1% hydrofluoric acid. The etching voltages ranged from one to ten volts, while the etching times had to be varied from two to twenty seconds. Voltages and time varied with specimen sizes, and processing, because of widely different responses to the etching.

Grain Size Measurements

The grain sizes were determined as a function of the various modes of deformation and annealing. Since most of the grains encountered were not equiaxed the grain size measurement was essentially volumetric. Grain dimension measurements were made on the longitudinal, long transverse, and short transverse planes, using photomicrographs taken on these planes. Figure 1 illustrates these directions with relation to the extrusion direction.

Quantitative grain dimension measurements were made by the line-intercept method, using at least 25 intercepts and averaging the grain dimension obtained for each intercept. When it occurred, a duplex grain structure was considered to be composed of material of two different grain sizes.

The basis quantity measured in the line intercept method was noted as N_1 , the number of grain boundary intersections per unit length of a transverse line. N_1 is statistically related to the mean intercept grain diameter, L as:

$$L = 1/N_1$$

The three values of N_1 in the three mutually perpendicular planes gave the number of grains per unit volume, N_v , and was obtained from the following formula (19)

$$N_v = (0.7) (N_1^r) (N_1^{th})$$

$$N_1^r = \text{number/mm in the rolling direction}$$

$$N_1^{tr} = \text{number/mm in the transverse direction}$$

$$N_1^{th} = \text{number/mm in the thickness direction}$$

The average grain dimension, $\bar{L}$, is obtained from:

$$\bar{L} = (0.422/N_v)^{1/3}.$$

For those specimens which were not equiaxed, the aspect ratio or the ratio of the length to width of the individual grains (L/D), was computed from the average length and width measurements. In those specimens with a duplex grain structure, the aspect ratio was measured for comparison purposes, with the larger of the grains showing the most elongation.

Elevated Temperature Tensile Testing

The effect of test temperature on tensile properties was evaluated only for the alloy 204B. Testing was carried out at room temperature, 22°C (72°F), 870°C (1600°F), and 1093°C (2000°F). Data were also obtained at several different strain rates (0.002, 0.020, and 0.200 inches of head movement per minute) for possible use in future analysis of activation enthalpies.

The material was tested in two basic conditions. The first was the as-extruded plus anneal condition, with the anneal consisting of heating of 1345°C for one hour. The second condition consisted of subjecting material of the first condition to a cold rolling reduction of 30%, annealing it at 871°C for one hour, and again at 1343°C for another hour.

Two test piece designs were used; round specimens were used for the as-received plus annealed material, and flat specimens for the rolled

material. The specimen design was such as to minimize the possibility of shoulder breaks, and can be seen in Figure 2 and 3. The specimen grips were made of TD Ni, TD Ni Cr and MAR M 246 superalloy, using alignment couplings. All grips were oxidized in air at 1093°C (2000°F) prior to assembly to eliminate diffusion bonding between specimen and grips. Various anti-seizure compounds were used with the round threaded specimens; boronitride mixed with methanol allowed the greatest ease in removing specimens from the grips without destroying the specimen. Broken test pieces proved to be easier to remove after soaking the grips in kerosene; however, little trouble was encountered in removing the flat specimens from their grips.

The test apparatus used to perform the tensile tests consisted of an Instron-Brew furnace combination using tantalum heating elements. Tests were run at 871°C (1600°F), and 1093°C (2000°F), under vacuum conditions of approximately 2×10^{-5} torr. Temperature was controlled to ± 2.8 C (5°F) using a Tungsten 5% Rhenium - Tungsten 26% Rhenium thermocouple.

Elevated Temperature Creep Testing

All creep testing was performed in tension using the same test piece design and gripping as that used for the elevated temperature

tensile tests. Creep tests were performed on Satec creep units, equipped with furnace retort assemblies which allowed the testing to be carried out in an argon atmosphere or in vacuum. A single testing temperature of 2000°F (1093°C) was employed.

Data collected from the creep tests included the steady-state creep rate, steady-state creep strain, time to rupture, and strain at rupture.

Transmission Electron Microscopy

In the characterization of the material, transmission electron microscopy was utilized to determine effects of rolling, annealing, and alloy content, along with determining the dispersoid particle size and spacing, and the detection of gamma-prime type precipitates.

Samples were metallographically hand polished to approximately 0.127 mm (0.005 in.) thickness. A spark cutting machine was then used to cut 3 mm diameter disks, suitable for insertion into the microscope specimen holder. Samples were electropolished using the Fishione electropolishing unit. A workable polishing solution consisted of a 7:1 solution of methanol and sulfuric acid kept at 0°C with an ice bath. Reproduceability of conditions was difficult and applied voltages varied around 12 volts with the current at about 70 ma.

Normal thickness specimens could be examined in the Siemens 102, 125 K.V. electron microscope; for thicker specimens, the Hitachi 650 K.V. microscope was used.

RESULTS AND DISCUSSION

As noted earlier, the objective of this portion of the total program was the development of processing techniques with which to obtain the optimum grain size and shape in NiCrAlY for its optimum creep resistance at elevated temperatures; the optimal value of these grain parameters were known to be highly elongated grains of maximum volume. The thermomechanical processing techniques which were found to have been successful in achieving these objectives in both TDNi and TDNiCr were those which were used to attempt to achieve the goal. These techniques involved sequences of cold working and subsequent annealing, using temperatures sufficiently high as to initiate recrystallization and to promote grain growth.

The parameters explored in the study of the thermomechanical processing included the amount of cold working (using cold rolling as the working mode), and the temperature and time of the subsequent anneal.

Characterization of the As-Extruded Material

The NiCrAlY used in the study was supplied as having been in nearly an equilibrium state, with a very low stored strain energy level in the material. Annealing studies of the as-extruded material confirm this

condition of the material.

The microstructure of the 204B powder bath had a very small grain size of 0.06μ , and a rather equiaxed grain structure. The starting grain sizes of all powder batches were basically identical, and all were nearly equiaxed.

It might be noted that the foreign microconstituent which was present in the grain boundaries of earlier lots of the NiCrAlY was absent in the 204B material. The chemical composition of the 204B material, Table I, is normal for the NiCrAlY alloy. The amount of yttrium found (0.96%) is comparable to the 1.2% Y_2O_3 addition. Of the 0.499% O_2 present, 0.255% is required for the 1.2% Y_2O_3 . The excess O_2 , 0.24% ties up 0.27% aluminum to form Al_2O_3 , leaving approximately 4.2% aluminum in solution. Examination of the material for the presence of additional second phases, notable gamma prime (γ') or similar phases, was carried out by X-ray diffraction and electron microscopy. No detectable presence of γ' could be noted. Results of electron microscopy are discussed in a later section.

Preliminary Annealing Study

The material, as received, had to be annealed to maximize softness and homogeneity before attempting cold rolling. Different annealing schedules led to finding the best preliminary anneal for all specimens.

The supplier indicated that maximum softening could be obtained by annealing in the range 1316°C (2400°F) to 1366°C (2490°F) with incipient fusion occurring at 1371°C (2500°F).

Consideration was given to length of anneal and rate of cool from the annealing temperature. With the alloy containing 4.4 to 4.6% aluminum, its composition was theoretically within the range for the formation of the gamma prime phase. The rate of cooling was investigated with this in mind, since the gamma prime phase would form only on slow cooling.

The flow chart on Table II shows the preliminary annealing studies undertaken for the 204B material. Earlier annealing studies of the 101 material included both a slow furnace cool and an air cool. A faster water quench was added for the 204B material in an attempt to maximize the softening of the material before rolling.

Extension of this earlier annealing study to the 204B material showed that the material responded to the annealing in the same general manner as did the 101 material. Recrystallization was complete at all temperatures above at least 1093°C (2000°F); rather large elongated grains were formed; considerable softening occurred. The largest final grain size was obtained at the highest annealing temperature used, 1343°C (2450°F). The grain size and shape for the 1343°C annealing schedules studied are listed below:

204B MATERIAL

<u>Rate of cool from 1343°C</u>	<u>Avg. Grain Dim. mm</u>	<u>Aspect Ratio</u>
Air Cool	0.652	10:1
Water Quench	2.324	17:1

The maximum softening produced as the result of the study was less than that obtained for the 101 material, but was still substantial. As was expected, the maximum softening was obtained with the highest annealing temperature employed, 1343°C (2450°F). The degree of softening obtained on the 204B material is summarized below:

204B MATERIAL

<u>Material Condition</u>	<u>Knoop Microhardness</u>
As-Extruded	514
Anneal one hour 1343°C (2450°F), Air Cool	352
Anneal one hour 1343°C (2450°F), Water Quench	309
Anneal 24 hours 1343°C (2450°F), Air Cool	308

The data shown above would indicate some variability in the material. Because of the small size of the annealing study specimens, it seems unlikely that there should be a difference in the actual cooling rate between air cool and water quench sufficient to produce the 43 points of hardness difference between the two specimens annealed at 1343°C. This same kind of variability is shown on the previous tabulation for the 204B material, which shows a larger grain size and aspect ratio for the water quenched specimen than for the air cooled specimen, both of which were annealed identically. It is highly unlikely that the cooling rate could produce such an effect. The gains obtained from the water quench could not be utilized effectively even if they were real, however, since a large proportion of the water quenched specimens showed quench cracks. These cracks could not be tolerated in specimens used for tensile and creep rupture testing.

On the basis of the above data, the decision was made to use the one hour anneal at 1343°C (2450°F) with air cool as the standard prerolling annealing treatment. The rationale behind this decision is the following:

1. Annealing temperature: 1343°C (2450°F) is the highest temperature at which an absence of incipient fusion can be assured, and at which the increase of grain size with increasing temperature can be exploited.

2. Annealing time: one hour appeared to produce as large a grain size at the longer annealing time (24 hours), with a minimization of danger of specimen damage because of abnormal temperature fluctuations.
3. Cooling rate: air cooling produced the largest grain size of any cooling rate, without danger of cracking (as was found in the 101 material which was water quenched), and without danger of forming the gamma prime phase (which has been reported on occasion for material of this composition with controlled slow cooling).

It should be noted that even on the furnace cooled specimens, no gamma prime microconstituents were visible in optical, nor electron microscope examinations. However, this did not guarantee the absence of submicroscopic particles, and the decision was made to use the air cool as the standard cooling rate.

Cold Rolling Plus Anneal Response of the 204B Material

The schedule of experiments for the cold rolling plus annealing study is shown on Table III.

The reactions of the 204B material to cold rolling and annealing followed those of the 101 material, previously reported, in that a duplex grain structure was produced upon annealing at higher temperatures at maximum reductions of 30%. The degree to which the duplex structure formed, however, was less.

A wedge shaped specimen, designed to yield reductions from 5 to 50 percent along the length of the wedge on rolling to a uniform thickness, showed similar results after a 1343°C (2450°F) one hour anneal. The duplex structure appeared at areas reduced greater than 15 percent with the finer structures appearing along the wedge as the percent reduction increased.

On the basis of results of the annealing studies, it seemed that it might be possible to remove the driving force of the recrystallization mechanism, which caused the duplex grain structure. Assuming that this driving force was the strain energy from the cold working, a suitable stress relief treatment (anneal) below the recrystallization temperature might produce this result.

After various experiments were devised and conducted, 871°C (1600°F) was chosen as a suitable stress relief annealing temperature. It is the highest temperature that could be employed to optimize relaxation processes

without inducing recrystallization. The largest amount of grain growth occurs at 1343°C (2450°F). Hence, if the stress relief anneal were successful in removing the driving force for recrystallization, none should occur at 1343°C after the stress relief treatment. Annealing as-rolled 30% reduction specimens at 871°C (1600°F), 1093°C (2000°F), 1204°C (2200°F), and 1343°C (2450°F) showed recrystallization really only at 1204°C (2200°F) and above with duplex grain structure evident.

To test the above hypothesis, as-rolled specimens were annealed at 871°C for four hours for relaxation and then heated to 1343°C for one hour. It was found that this double-anneal treatment practically eliminated all of the fine recrystallized grains. The cold worked grains are still present; even the slip traces resulting from the cold rolling persisted. Further experimentation showed the same results from stress relief of only one hour at 871°C (1600°F) with a subsequent heating to 1343°C (2450°F) for one hour.

The resultant grain sizes for the rolling and annealing treatments of the 204B material are summarized below. (all specimens had been given a 1343°C (2450°F) one hour pre-rolling anneal).

204B MATERIAL - ROLLED LONGITUDINALLY

<u>Thermomechanical Treatment</u>	<u>Average Grain Dimension (mm)</u>	<u>Aspect Ratio</u>	<u>Grain Uniformity</u>
25% Reduction 2450°F 1 hour	1.04	25-60 35 Avg.	Slip bands. Duplex grain structure.
30% Reduction 2450°F 1 hour	0.79	30-50 40 Avg.	Slip bands. Some duplex grains.
30% Reduction 1600°F 4 hours 2450°F 1 hour	0.88	30-60 45 Avg.	Some small elong. grains. Balance large grains.
30% Reduction 1600°F 1 hour 2450°F 1 hour	0.98	50-60 55 Avg.	Some small elong. grains. Balance large grains.

For use in elevated tensile testing of the NiCrAlY, the treatment consisting of the 30% rolled, 871°C (1600°F) one hour, 1343°C (2450°F) one hour anneal specimens employed.

Elevated Temperature Tensile Properties

The high temperature tensile properties were determined for the 204B material in the as-received with a 1343°C (2450°F), one hour anneal, and in the 30% rolled, 2-step annealed condition. Testing temperatures were 871°C (1600°F), and 1093°C (2000°F). The standard tensile properties

were measured: tensile strength, 0.2% offset yield strength and ductility, (as measured both in terms of percent elongation and reduction in area). Room temperature tensile properties were also obtained for both material states. The tensile properties are listed in Table IV, and shown graphically in Figures 4 and 5.

The yield strength of the as-received annealed material at 25°C (77°F) was 100,000 psi; that for the rolled and annealed material 123,000 psi. The rolled material possessed a larger grain dimension than the as-received although it was more elongated, (larger L/D ratio). The tensile strengths of these materials were 167,000 and 173,000 psi respectively.

The ambient temperature strengthening brought about by the cold rolling is consistent with the strain hardening characteristics of ODS nickel-base alloys. The drop in room temperature ductility with cold rolling also reflects this characteristic.

The tensile test pieces showed substantial amounts of anisotropy of the plastic flow in uniaxial tension at ambient temperature. The cross section of the initially round test piece became elliptical, with the minor axis of the ellipse being in the short transverse direction of the extruded plate.

As the test temperature was increased to 1600°F (871°C) and 2000°F (1093°C), the effect of the cold work on the mechanical properties seemed to disappear, with the strength and ductility values for both material conditions being about the same. Rather significantly, all the ductility values, both elongation and reduction in area, were in the 4-6% range.

Strain Rate Sensitivity

The strain rate sensitivity was measured for both material conditions ---as-extruded plus 2450°F anneal, and 30% cold work with the two-step anneal--- over the rate range 10^{-3} to 10^{-1} and at both 1600°F (871°C) and 2000°F (1093°C). The data are shown in Table IV and Figures 6 to 9.

The usual increase in strength with increasing strain rate was observed for both material conditions at 1600°F (871°C), with the cold rolled material being, perhaps, slightly more sensitive, Figures 6 and 7. At 2000°F (1093°C), the strain rate sensitivity of the strengths of both conditions was greatly reduced to a very minor effect.

The scatter in ductility values, brought about by the large grain size of the materials and their anisotropy of plastic flow, makes assessment of the high temperature strain rate effect on ductility very diffi-

cult. The as-extruded and annealed material showed a large drop in ductility as the strain rate was increased from 10^{-3} to 10^{-2} , Figures 8 and 9. The cold rolled material with the two-step anneal showed little if any drop over this rate interval, probably because the cold rolling had reduced ductility to lower values even at a strain rate of 10^{-3} . Despite the scatter of the data, it is significant to note that the NiCrAlY in either conditions could not be termed "brittle" even at the highest strain rate and at the higher temperature employed.

Creep Characteristics

The bulk of the creep characteristic evaluation was carried out on the NiCrAlY in the as-extruded plus 2450°F (1343°C) anneal since this material had a favorable grain size and shape. Then, later in the study, the material condition consisting of the cold work and a two-step anneal was developed and showed promise of having good creep resistance, a very limited amount of creep work was performed on material with this treatment.

As-Extruded Material with 2450°F Anneal

The NiCrAlY with the treatment consisting of a single 2450°F (1343°C) anneal was tested in creep at 2000°F only, using stress levels from 10,000 psi (70 MPa) to 15,000 psi (103.4 MPa). The creep curves generated are shown in Figures 10 to 16. The basic data taken from the creep curves and tests are listed tabularly in Table V. Rupture times ranged from something greater than 450 hours (for the 10,000 psi strength level for which the test was stopped after 450 hours) to 0.2 hours (for the 15,000 psi stress level). Steady state creep rates ranged from 2.62×10^{-9} to 5.0×10^{-4} over that same 5,000 psi stress range.

The effect of the applied stress on the rupture time is shown graphically in Figures 17 and 18. The classical linear relation is observed when both applied stress and rupture time as shown in logarithmic form, Figure 18.

The relation between applied stress and steady state creep rate is shown in Figure 19. The normal functional relation seems valid at the lower applied stress values (10,000 to 12,000 psi) but the relation becomes nonlinear at the higher stress levels (13,000 and 15,000 psi). There are not sufficient reliable data to attempt to rationalize this latter behavior.

Cold Rolled Material with Two-Step Anneal

Figure 20 shows the creep curve generated at 2,000°F and a 12,000 psi stress level with the material which had been given the cold work processing with a subsequent two-step anneal. Comparison of this curve with those (for the same test conditions) of the material given only a 2450°F anneal, Figure 13 and 14, shows several striking differences. The rupture time is increased more than 10-fold and the steady state creep rate has been decreased almost 20-fold. Figure 21 shows a direct comparison of the relevant creep data at the 12,000 psi level for the two different material conditions.

CONCLUSIONS

On the basis of the work reported upon herein, the following conclusions seem warranted.

1. Commercially produced NiCrAlY is capable of developing a grain structure (volume and aspect ratio) favorable for creep resistance upon annealing the as-extruded material at 2450°F (1343°C) for one hour. For the material used in this study, the average grain dimension was about 0.7 to 1.0 mm and the aspect ratio was about 10:1.
2. The commercially produced NiCrAlY annealed at 2450°F (1343°C) was capable of cold work (by rolling) in amounts up to at least 30% (in the original extrusion direction).
3. The cold rolling of the NiCrAlY produced favorable increases in aspect ratio.
4. The cold worked NiCrAlY could be stabilized microstructurally by a relaxation anneal at 1600°F (871°C) for one hour, to reduce the stored strain energy resulting from the cold working, and then a second anneal at 2450°F (1343°C) for

one hour. This microstructural stability was still present in the material after long periods of heating at 2450°F (1343°C).

5. The material treated as in Item 4 above showed creep resistance vastly superior to that of the material which was given a single high temperature anneal after extrusion.

LIST OF REFERENCES

1. J.S. Benjamin, in Metallurgical Transactions, 5, (1974), 1929.
2. D.L. Deadmore, C.E. Lowell, G.J. Santoro, NASA Technical Memorandum, NASA TM-X-71835, (1975).
3. J.K. Tien, Alloy Design with Oxide Dispersoids and Precipitates, progress report from Columbia University (1975).
4. J.J. Petrovic, M.S. Thesis, Division of Metallurgy and Materials Science, Case Western Reserve University, Cleveland, Ohio, January, 1970.
5. J.J. Petrovic, Ph.D. Thesis, Division of Metallurgy and Materials Science, Case Western Reserve University, Cleveland, Ohio, August, 1972.
6. R.D. Kane, M.S. Thesis, Division of Metallurgy and Materials Science, Case Western Reserve University, Cleveland, Ohio, (1973).
7. R.D. Kane, Ph.D. Thesis, Division of Metallurgy and Materials Science, Case Western Reserve University, Cleveland, Ohio, (1974).
8. R.W. Cahn, Recrystallization Grain Growth and Texture, ASM, (1966), 99.
9. B.A. Wilcox, A.H. Clauer, Acta Met., 20, (1972), 743.
10. G.S. Doble, Ph.D. Thesis, Division of Metallurgy and Materials Science, Case Western Reserve University, Cleveland, Ohio, (1967).
11. J.S. Benjamin, Metallurgical Transactions, 1, (1970), 2943.
12. J.S. Benjamin, M.J. Bomford, Metallurgical Transactions, 5, (1974), 615.
13. R.L. Cairns, L.R. Curwick, J.S. Benjamin, Metallurgical Transactions, 6a, (1974), 179.
14. R. DeMaria, A. DeSalvo, D. Nobile, Recrystallization Grain Growth and Texture, ASM, (1966), 113.

15. R.L. Cairns, Metallurgical Transactions, 5, (1974), 1677.
16. R.L. Cairns, L.R. Curwick, J.S. Benjamin, Metallurgical Transactions, 6a, (1975), 179.
17. M.C. Cahtuvedi, D.J. Lloyd, D.W. Chung, Metal Science (1976), 373.
18. D.M. Trela and L.J. Ebert, Annual Status Report, NASA Grant NGR 36-003-094, June 1975.
19. W.L. Mandins, Metallography, 9, (1976), 227.

TABLE I

CHEMICAL COMPOSITIONS OF VARIOUS LOTS OF NiCrAlY
USED IN THE STUDY

<u>ELEMENT</u>	<u>AMOUNT - Per Cent by Weight</u>			
	<u>POWDER BATCH 101</u>	<u>POWDER BATCH 204B</u>		<u>POWDER BATCH 262</u>
		<u>ANALYSIS A</u>	<u>ANALYSIS B</u>	
Aluminum	3.08	3.95	4.47	4.61
Carbon	0.091	0.05	0.056	0.05
Chromium	15.19	15.8	15.49	15.78
Iron	ND*	1.31	1.18	0.28
Nitrogen	ND	ND	0.037	0.032
Nickel	77.91	76.2	77.3	74.75
Sulfur	ND	ND	ND	0.002
Tantalum	ND	ND	ND	0.01
Yttrium	0.58	0.99	0.96	1.52
Oxygen	ND	4810 ppm	950 ppm	5345 ppm
Cobalt	ND	ND	ND	1.1
* Not Determined				

NOTES:

1. Analysis A of Lot 204B was that supplied by the manufacturer of the alloy (Cabot) as applying to the powders prior to the attritting, or mechanical alloying.
2. Analysis B of Lot 204B was that determined at NASA (Lewis) by spectrograph on sample of the as-extruded material supplied by Cabot.
3. Powder Batch 262 was material supplied by NASA (Lewis) for use in preliminary work pending receipt of the preferred material from Cabot. The chemical analysis was a semi-quantitative analysis performed by Crobaugh Laboratories, Cleveland, Ohio

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TABLE II

PRELIMINARY ANNEALING STUDY

(Nicaly Powder Batch 204B)

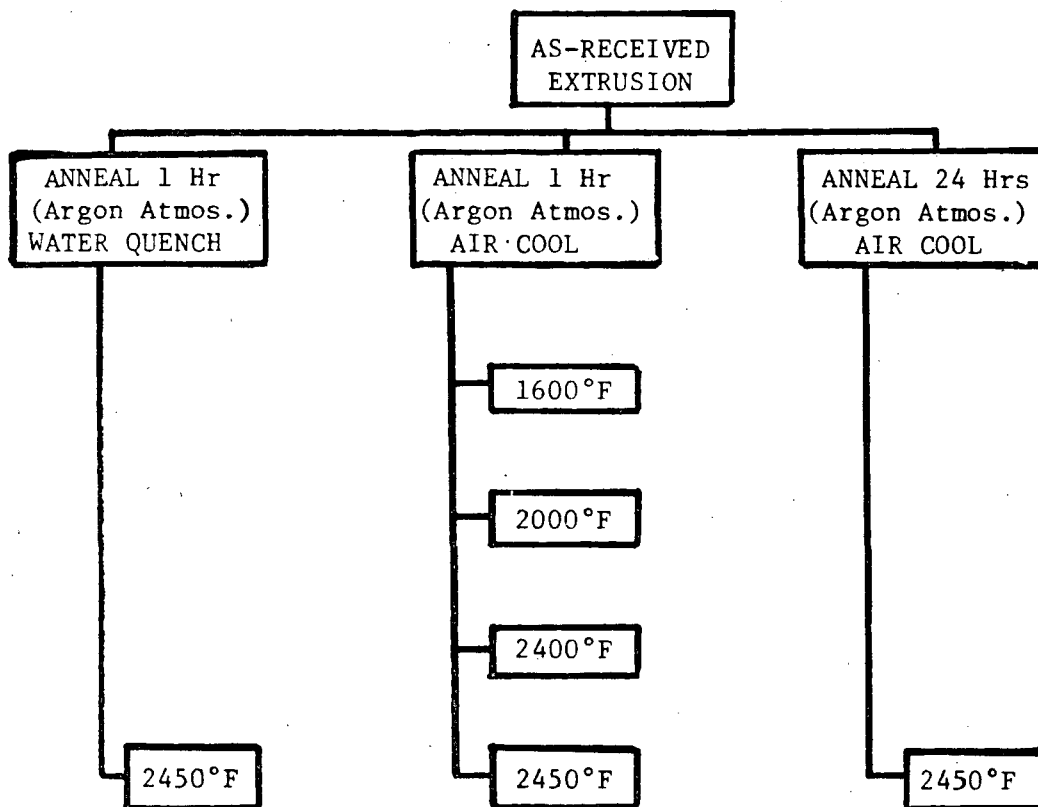
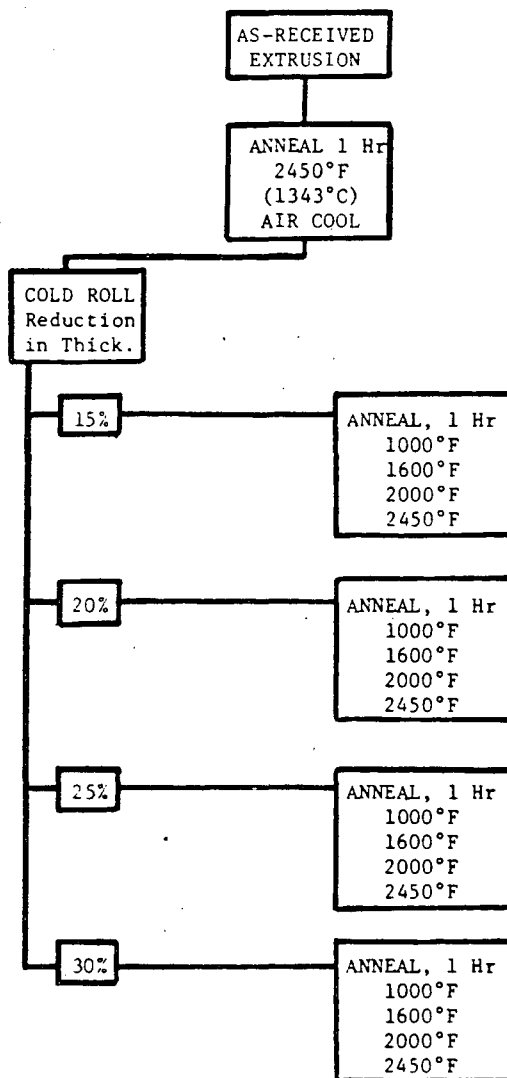


TABLE III

COLD WORK PLUS ANNEAL STUDY

NICRALY POWDER BATCH 204B
ROLLED IN LONGITUDINAL DIRECTION



Note: All material air cooled from final anneal.

TABLE IV

TENSILE PROPERTIES OF NiCrAlY
AT AMBIENT AND ELEVATED TEMPERATURES
AND AT SEVERAL STRAIN RATES

MATERIAL CONDITION	STRAIN RATE* In/Min	YIELD STRENGTH PSI (MPa)	TENSILE STRENGTH PSI (MPa)	ELONGATION %	REDUCTION IN AREA %
<u>AMBIENT TEMPERATURE</u>					
AR**	0.020	100,200 (691)	166,100 (1,145)	10.4	15.6
AR	0.020	100,500 (693)	167,200 (1,153)	11.1	13.6
CR-2SA***	0.020	123,000 (848)	173,600 (1,197)	7.1	18.3
CR-2SA	0.020	121,000 (834)	168,300 (1160)	7.2	20.1
<u>1600°F (871°C)</u>					
AR	0.002	24,000 (165)	24,500 (169)	9.6	10.8
AR	0.002	25,900 (179)	26,180 (181)	11.4	24.5
CR-2SA	0.002	31,000 (214)	35,380 (244)	5.9	4.0
AR	0.020	30,090 (213)	31,050 (214)	5.1	5.8
CR-2SA	0.020	40,520 (279)	42,100 (290)	5.4	6.0
AR	0.200	35,150 (242)	36,200 (250)	6.3	6.8

(Continued on the following page.)

TABLE IV
(Continued)

MATERIAL CONDITION	STRAIN RATE* In/Min	YIELD STRENGTH PSI (MPa)	TENSILE STRENGTH PSI (MPa)	ELONGATION %	REDUCTION IN AREA %
<u>2000°F (1093°C)</u>					
AR	0.002	13,600 (94)	14,500 (100)	21.7	21.8
CR-2SA	0.002	10,200 (70)	11,030 (76)	5.0	1.9
CR-2SA	0.002	7,300 (50)	7,760 (54)	9.5	5.7
AR	0.020	14,500 (100)	14,690 (101)	5.2	5.9
AR	0.020	14,500 (100)	14,710 (101)	4.4	6.6
CR-2SA	0.020	13,480 (93)	14,600 (101)	4.2	5.2
CR-2SA	0.020	12,680 (87)	13,900 (96)	3.6	4.4
AR	0.200	15,550 (107)	16,900 (117)	4.6	5.3

* Rate of movement of head of testing machine.

** As-Received (As-Extruded).

*** Processed according to the following schedule:

As-extruded, anneal 1 hour at 2450°F (1343°C), cold roll
30% reduction in cross section (thickness), anneal 1 hour
at 1600°F (871°C), anneal 1 hour at 2450°F (1343°C).

TABLE V

CREEP TEST DATA

NiCrAlY Lot 204B Material

Test Temperature 2000°F (1093°C)

SPEC. NO.	APPLIED STRESS PSI (MPa)	STEADY STATE CREEP RATE In/In/Sec	RUPTURE TIME Hours	ELONGATION AT RUPTURE %	RED. IN AREA AT RUPTURE %
<u>AS-EXTRUDED, ANNEALED AT 2450°F (1343°C) 1 HOUR</u>					
3A	10,000 (70)	7.27×10^{-13}	DNF*	DNF*	DNF*
6A	11,000 (75.8)	2.42×10^{-9}	66.5	9.5	9.1
7B	11,000 (75.8)	2.17×10^{-9}	93.0	6.7	7.9
5A	12,000 (82.7)	1.72×10^{-6}	10.8	7.1	2.8
14	12,000 (82.7)	7.64×10^{-7}	8.6	4.3	2.2
19	13,000 (89.6)	1.79×10^{-6}	6.3	2.7	4.1
2A	15,000 (103.4)	1.39×10^{-5}	0.2	14.3	6.3
<u>COLD ROLLED 30%, ANNEALED 1 Hour at 1600°F (871°C) plus ANNEALED 1 Hour at 2450°F (1343°C)</u>					
H-2	12,000 (82.7)	5.39×10^{-8}	112.0	4.3	3.9

* Did Not Fail; test halted after 450 hours.

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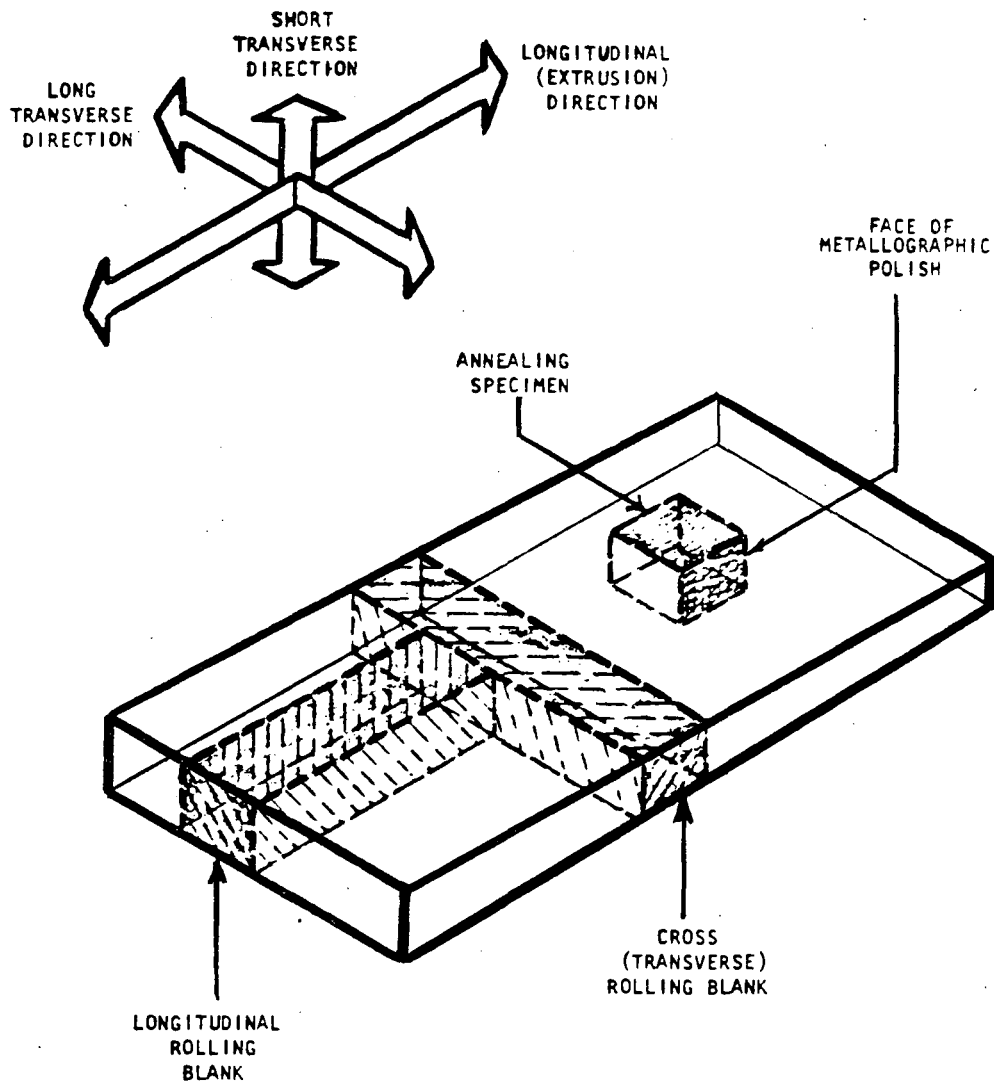


FIGURE 1 SCHEMATIC ILLUSTRATION DEFINING VARIOUS DIRECTIONS WITH RELATION TO THE EXTRUSION DIRECTION, AND THE LOCATION OF THE VARIOUS BLANKS AND SPECIMENS CUT FROM THE AS-RECEIVED EXTRUSION

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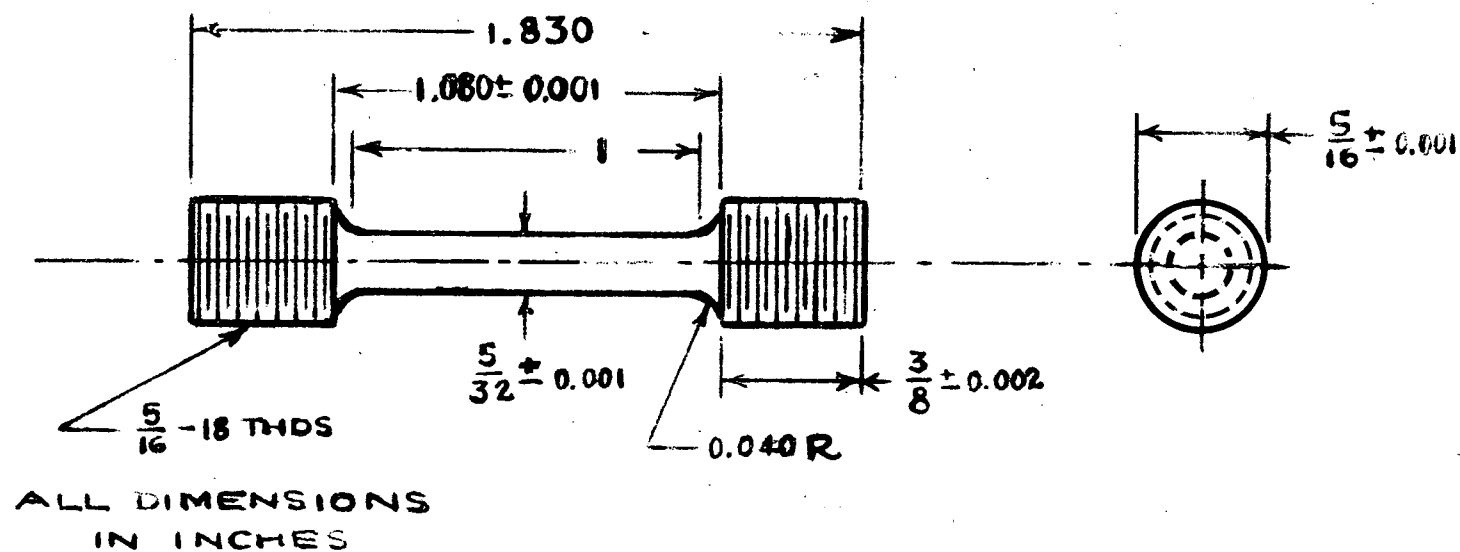


FIGURE 2: DIMENSIONS OF ROUND TEST-PIECE USED FOR BOTH TENSILE TESTS AND CREEP TESTS.

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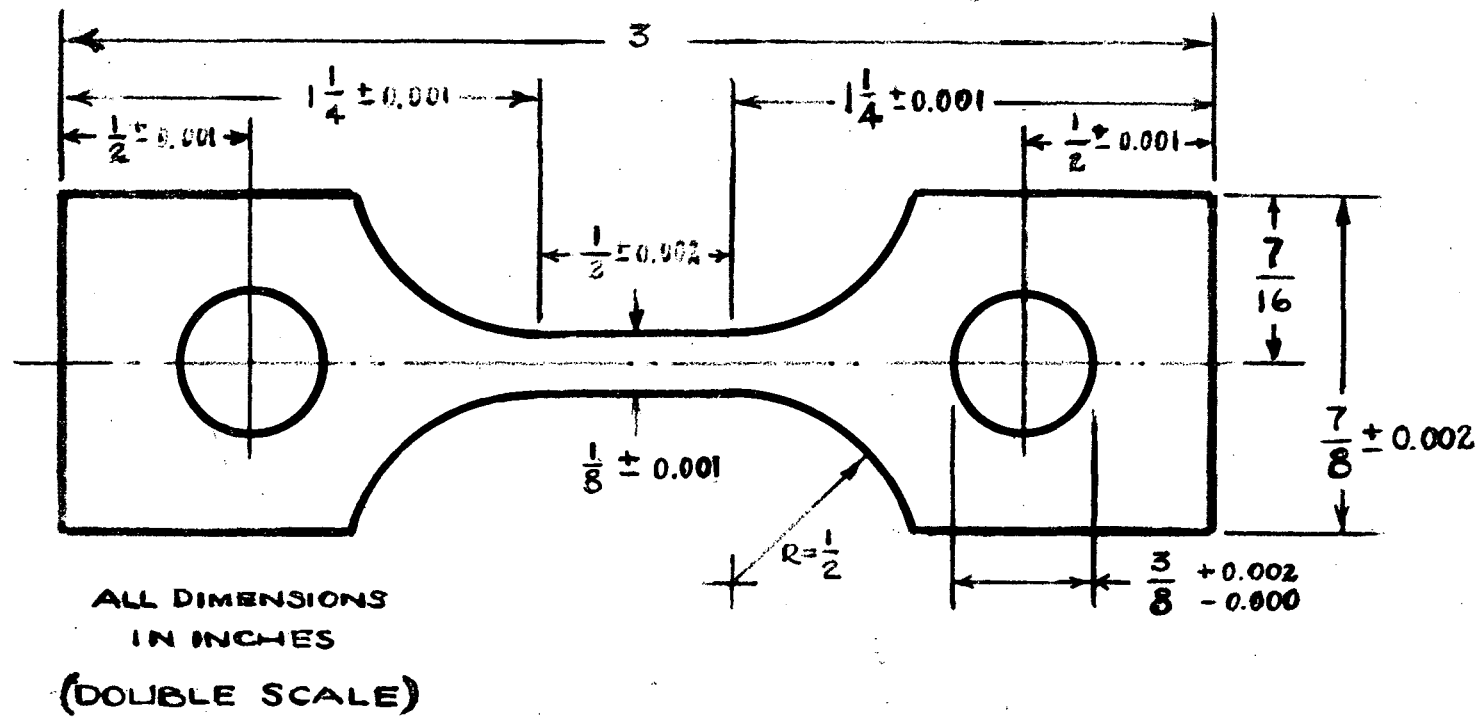


FIGURE 3: DIMENSIONS OF FLAT TEST-PIECE USED FOR BOTH TENSILE TESTS AND CREEP TESTS.

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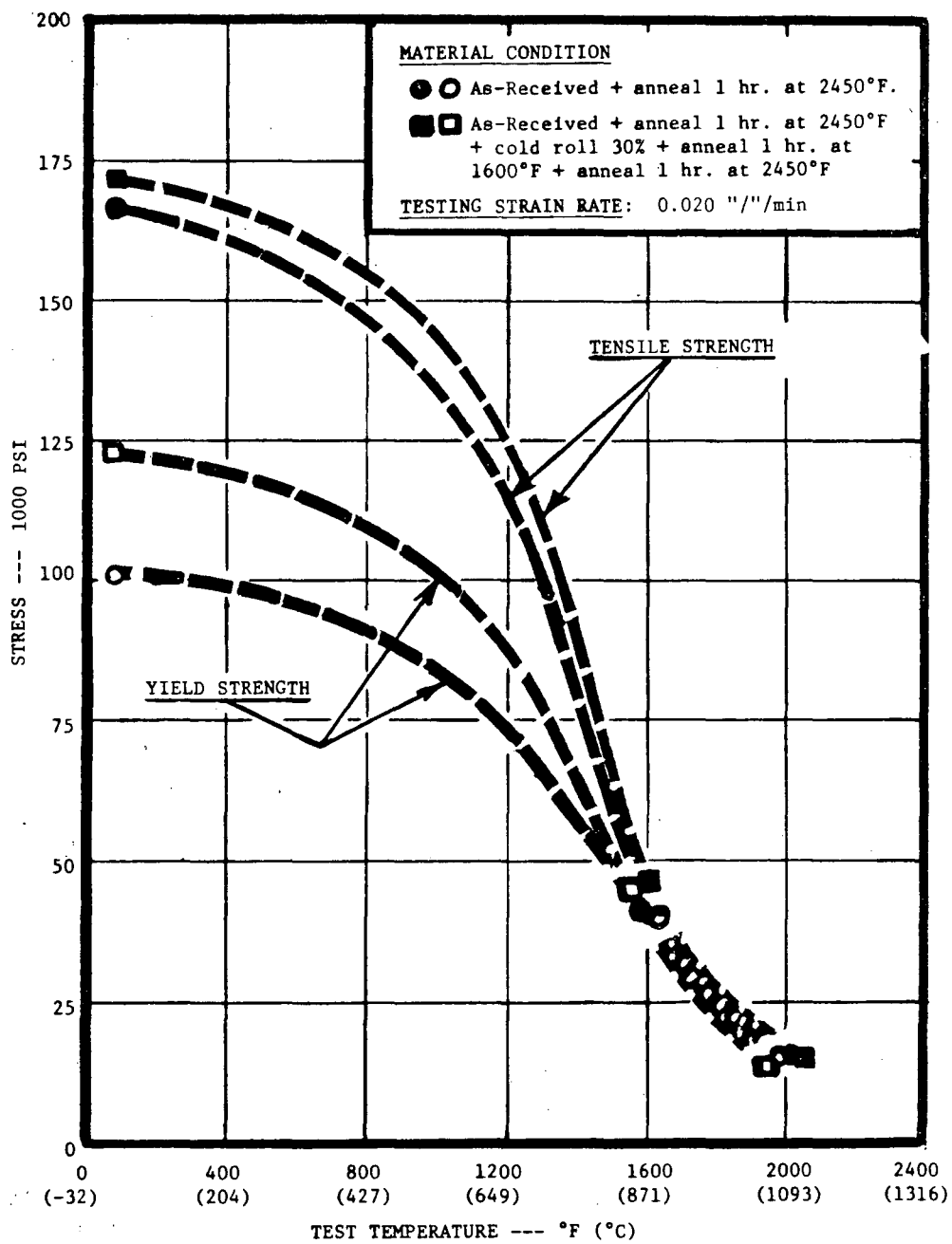


FIGURE 4: YIELD AND TENSILE STRENGTH OF NiCrAlY AS A FUNCTION OF TEMPERATURE FOR TWO DIFFERENT MATERIAL CONDITIONS.

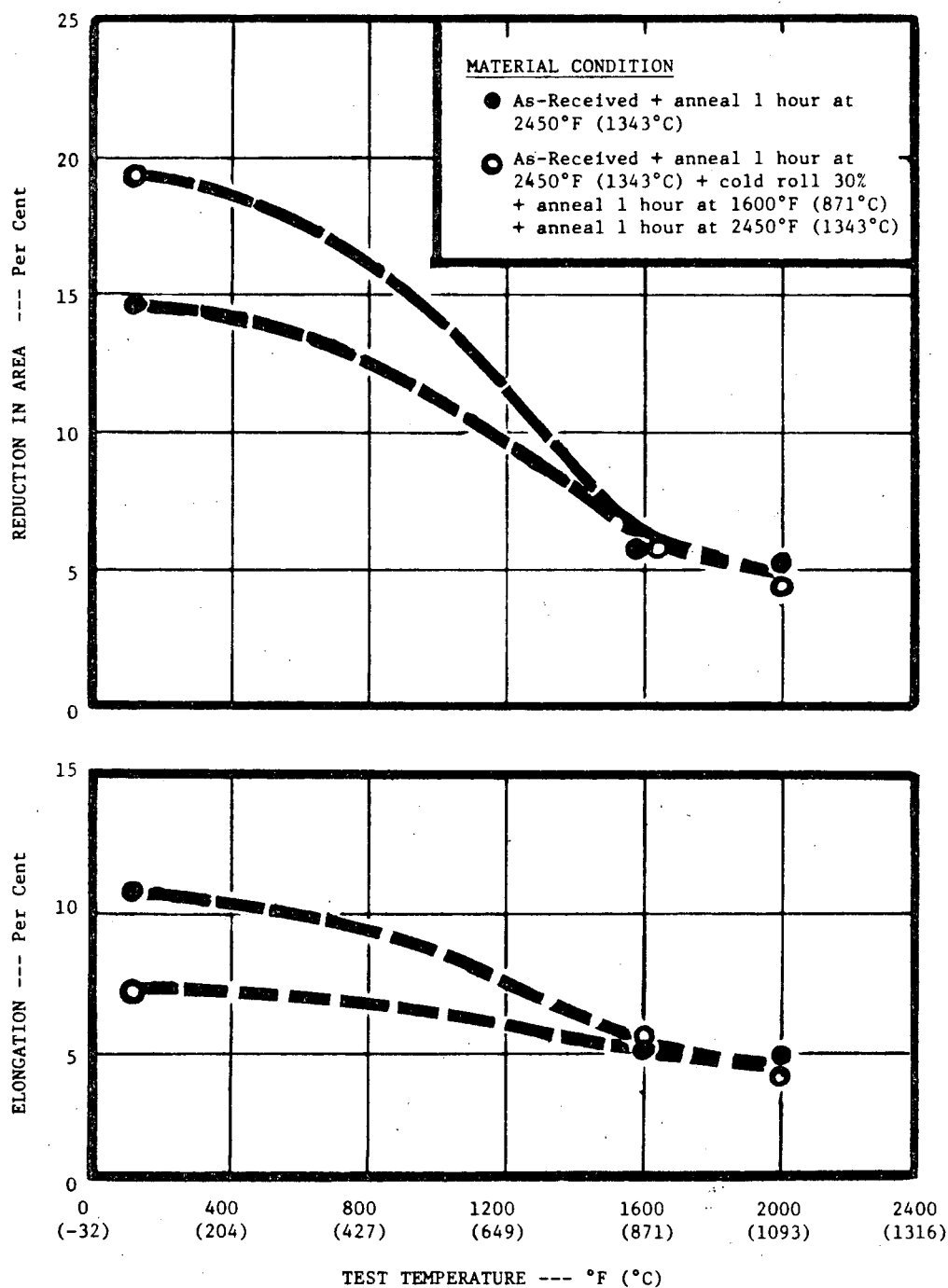


FIGURE 5: TENSILE DUCTILITY OF NiCrAlY AS A FUNCTION OF TEMPERATURE FOR TWO DIFFERENT MATERIAL CONDITIONS

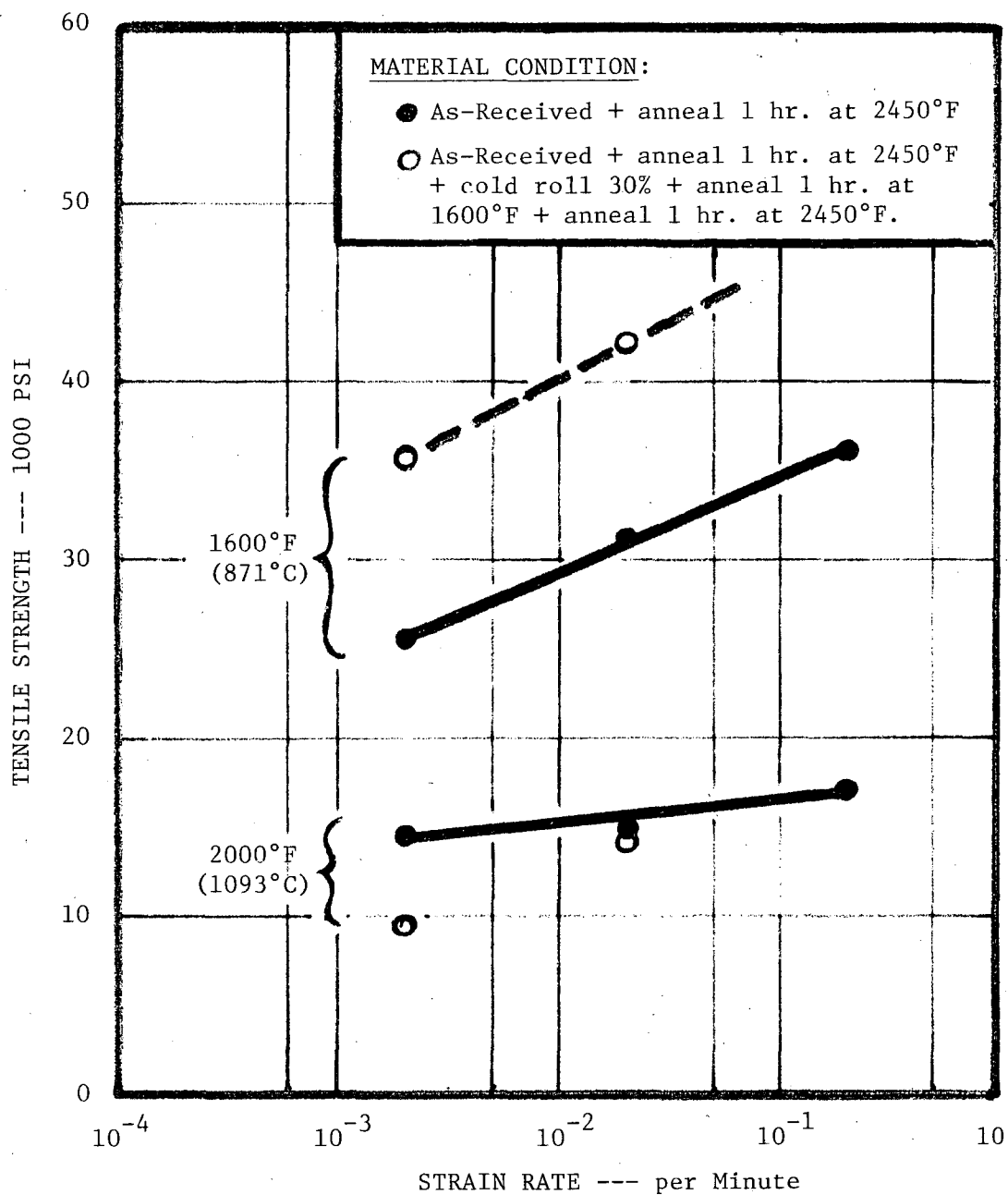


FIGURE 6: STRAIN RATE SENSITIVITY OF THE TENSILE STRENGTH OF NiCrAlY IN TWO DIFFERENT MATERIAL CONDITIONS, AND AT TWO DIFFERENT ELEVATED TEMPERATURES.

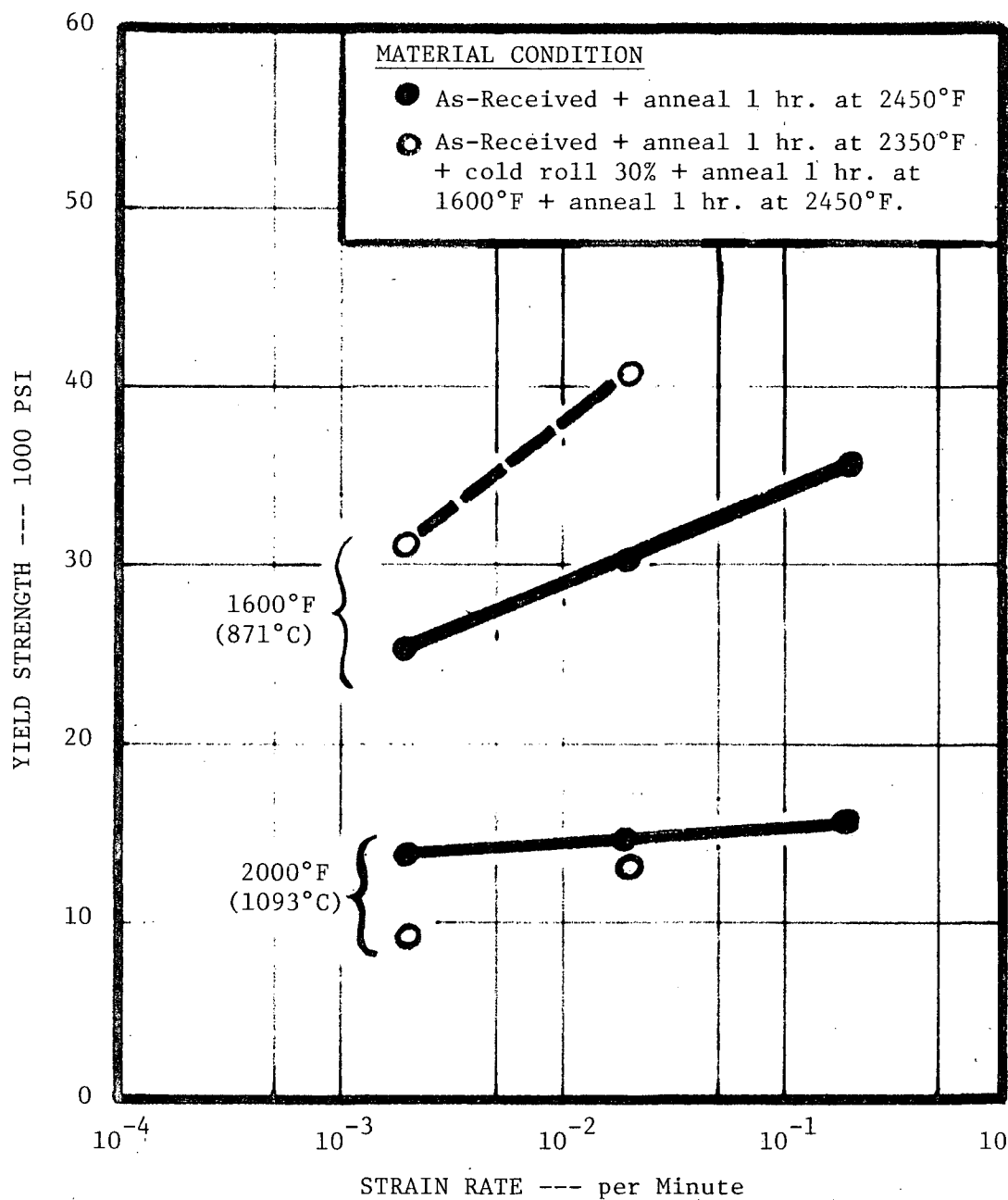


FIGURE 7: STRAIN RATE SENSITIVITY OF THE YIELD STRENGTH OF NiCrAlY IN TWO DIFFERENT MATERIAL CONDITIONS, AND AT TWO DIFFERENT ELEVATED TEMPERATURES.

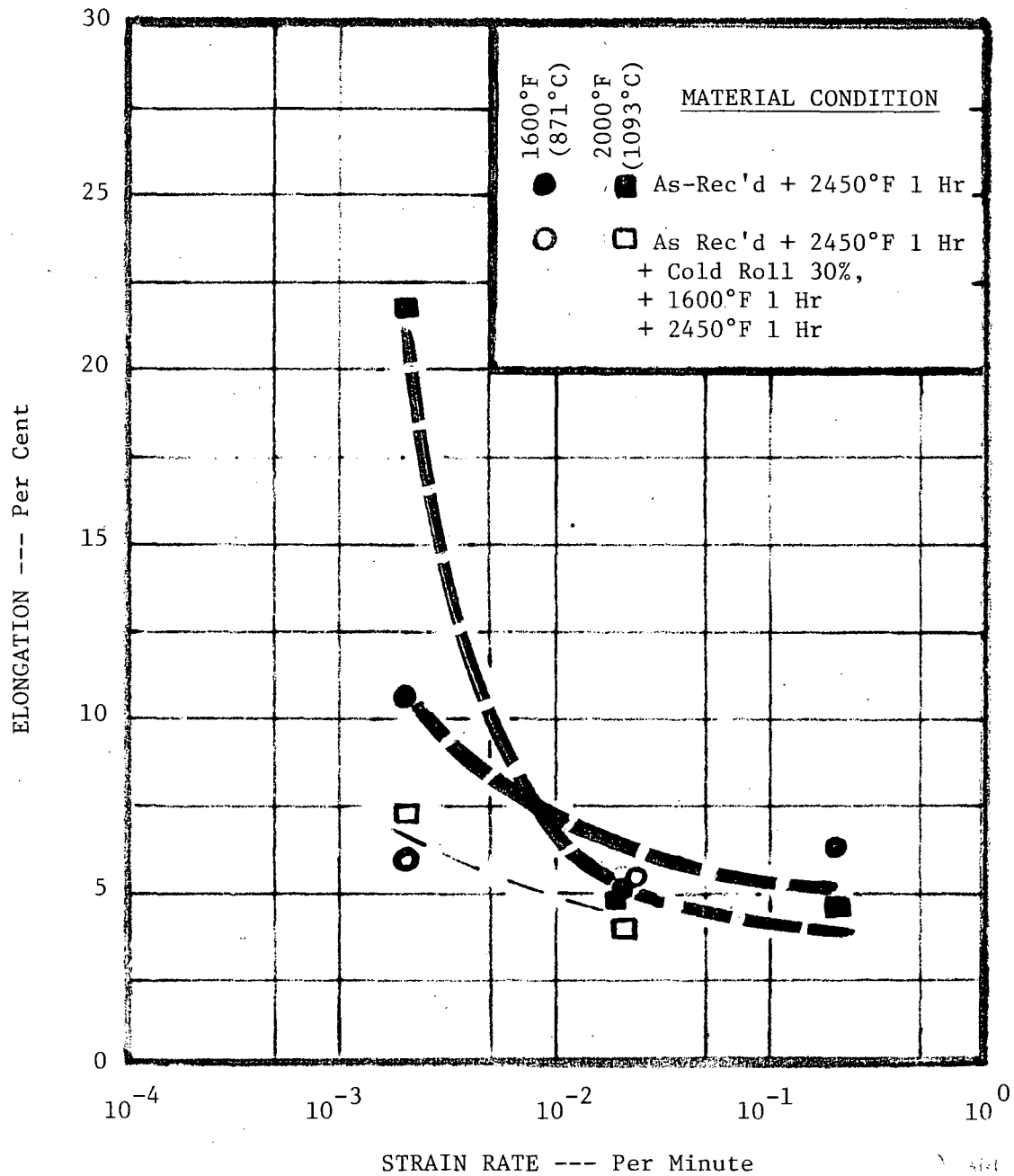


FIGURE 8: STRAIN RATE SENSITIVITY OF THE TENSILE ELONGATION OF NiCrAlY IN TWO DIFFERENT MATERIAL CONDITIONS, AND AT TWO DIFFERENT ELEVATED TEMPERATURES.

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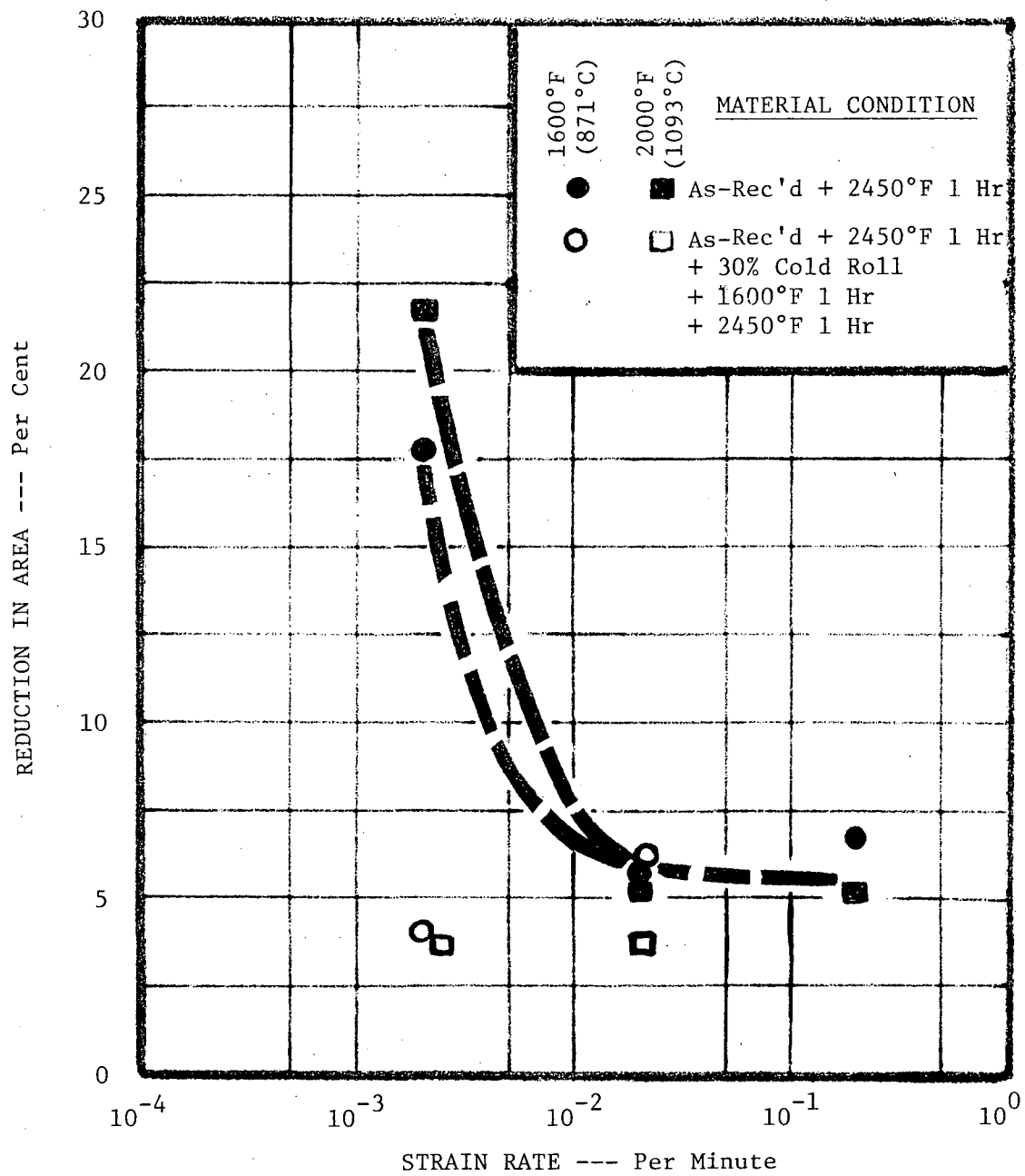


FIGURE 9: STRAIN RATE SENSITIVITY OF THE TENSILE REDUCTION IN AREA OF NiCrAlY IN TWO DIFFERENT MATERIAL CONDITIONS, AND AT TWO DIFFERENT ELEVATED TEMPERATURES.

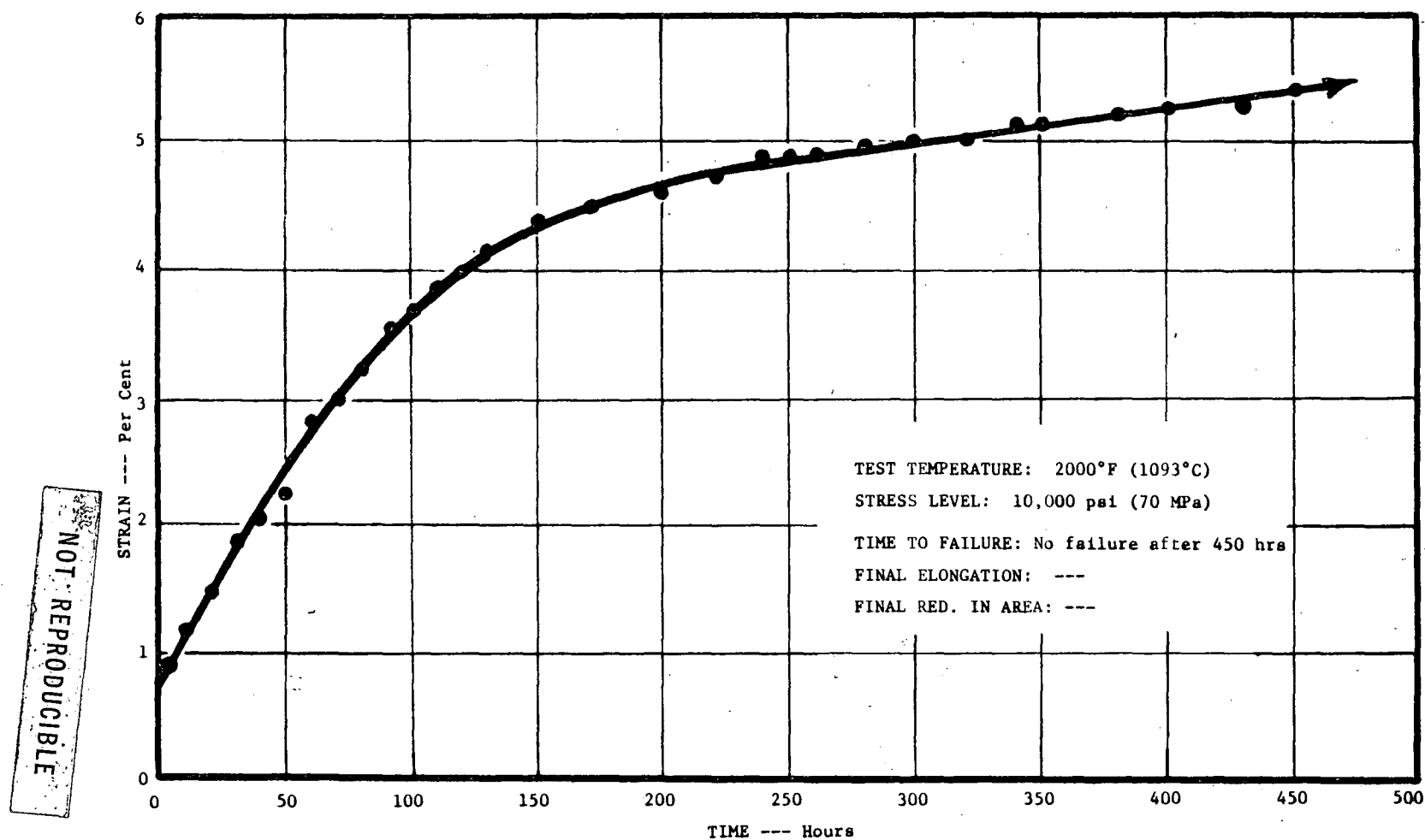


FIGURE 10: CREEP CURVE FOR NiCrAlY AT AN APPLIED STRESS OF 10,000 PSI (70 MPa) AND A TEMPERATURE OF 2000°F (1093°C). MATERIAL IN THE AS-EXTRUDED AND ANNEALED (at 2450°F, 1413°C) CONDITION.

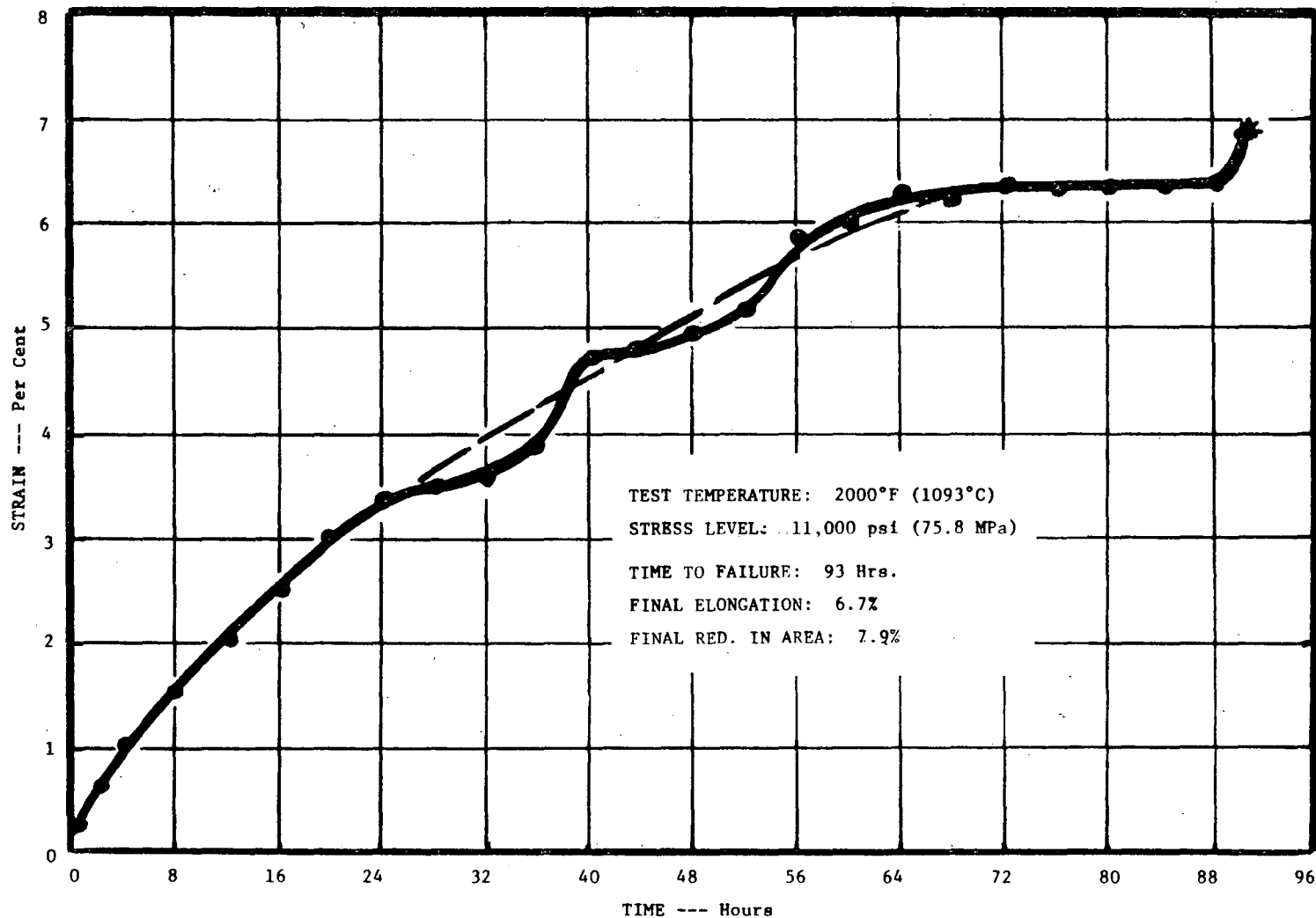


FIGURE 11: CREEP CURVE FOR NiCrAlY AT AN APPLIED STRESS OF 11,000 PSI (75.8 MPa) AND AT A TEMPERATURE OF 2000°F (1093°C). MATERIAL IN THE AS-EXTRUDED AND ANNEALED (at 2450°F, 1343°C) CONDITION.

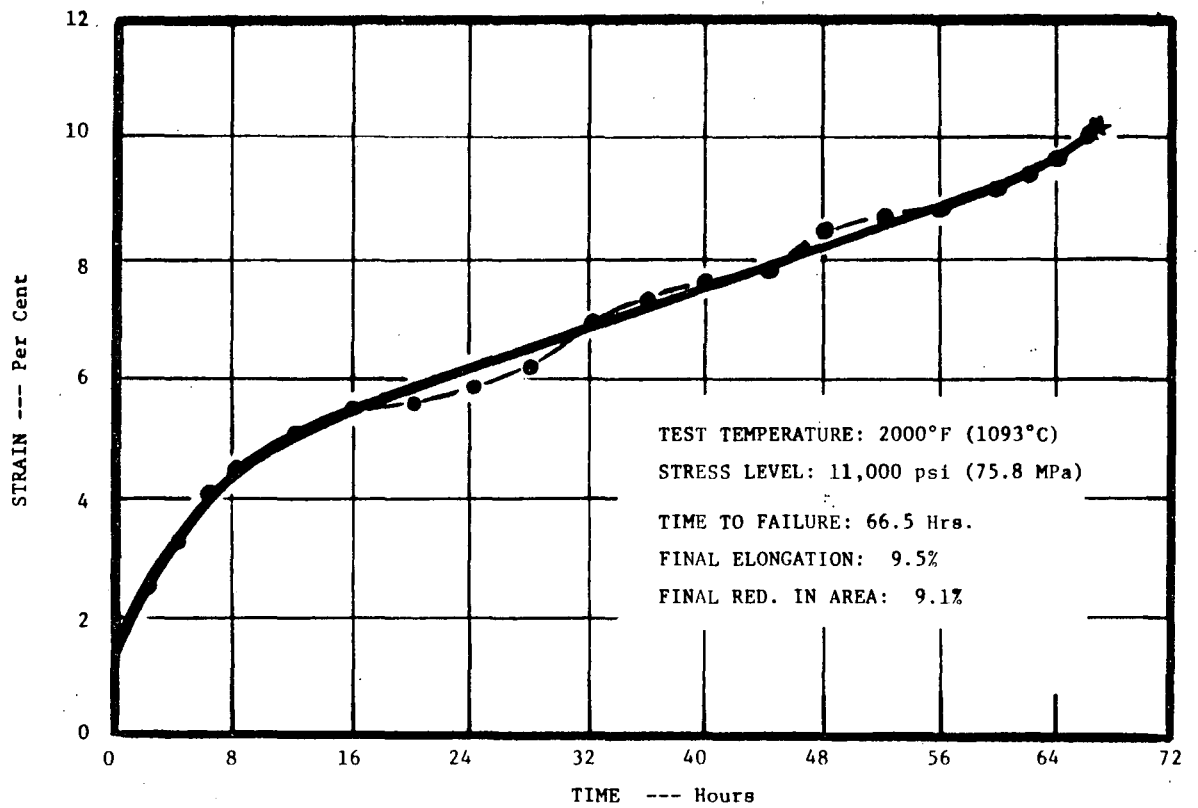


FIGURE 12; CREEP CURVE FOR NiCrAlY AT AN APPLIED STRESS OF 11,000 PSI (75.8 MPa) AND A TEMPERATURE OF 2000°F (1093°C). MATERIAL IN THE AS-EXTRUDED AND ANNEALED (at 2450 °F, 1343°C) CONDITION.

NOT REPRODUCIBLE

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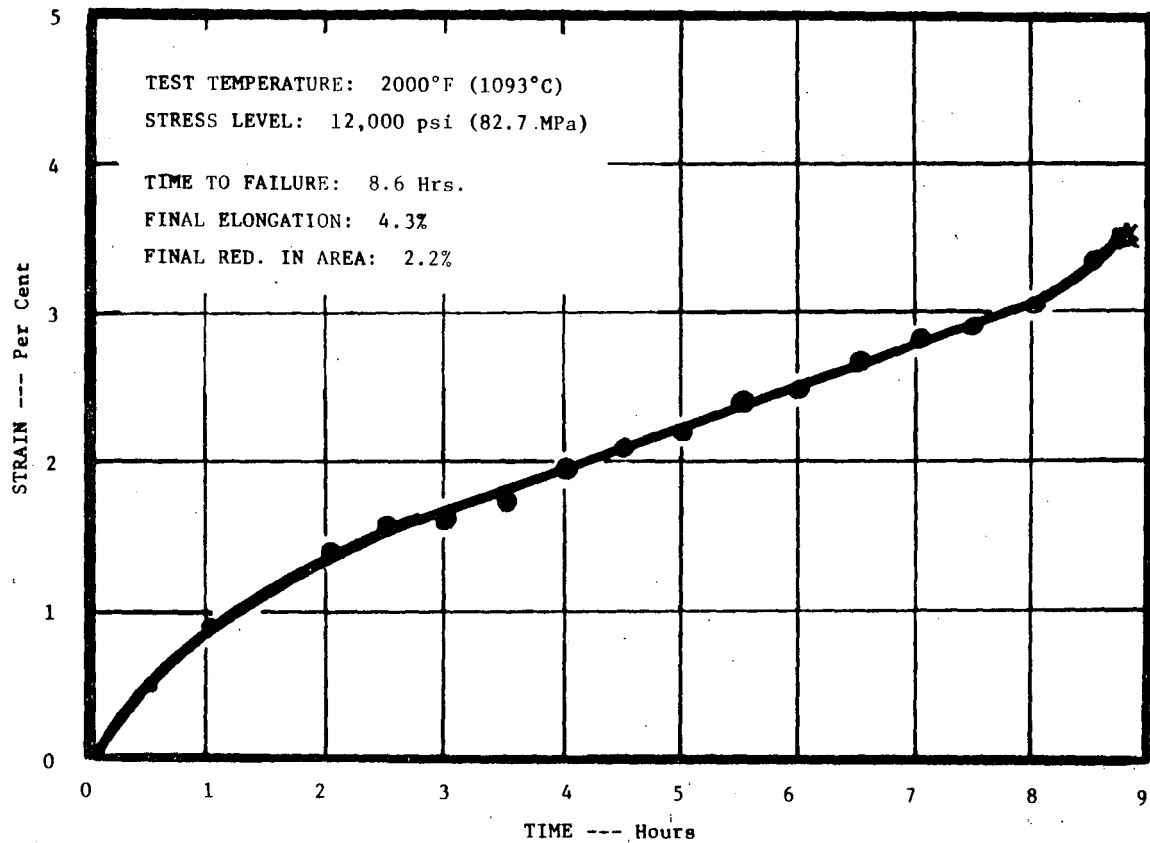


FIGURE 13: CREEP CURVE FOR NiCrAlY AT AN APPLIED STRESS OF 12,000 PSI (82.7 MPa) AND A TEMPERATURE OF 2000°F (1093°C). MATERIAL IN THE AS-EXTRUDED AND ANNEALED (at 2450°F, 1343°C) CONDITION.

NOT REPRODUCIBLE

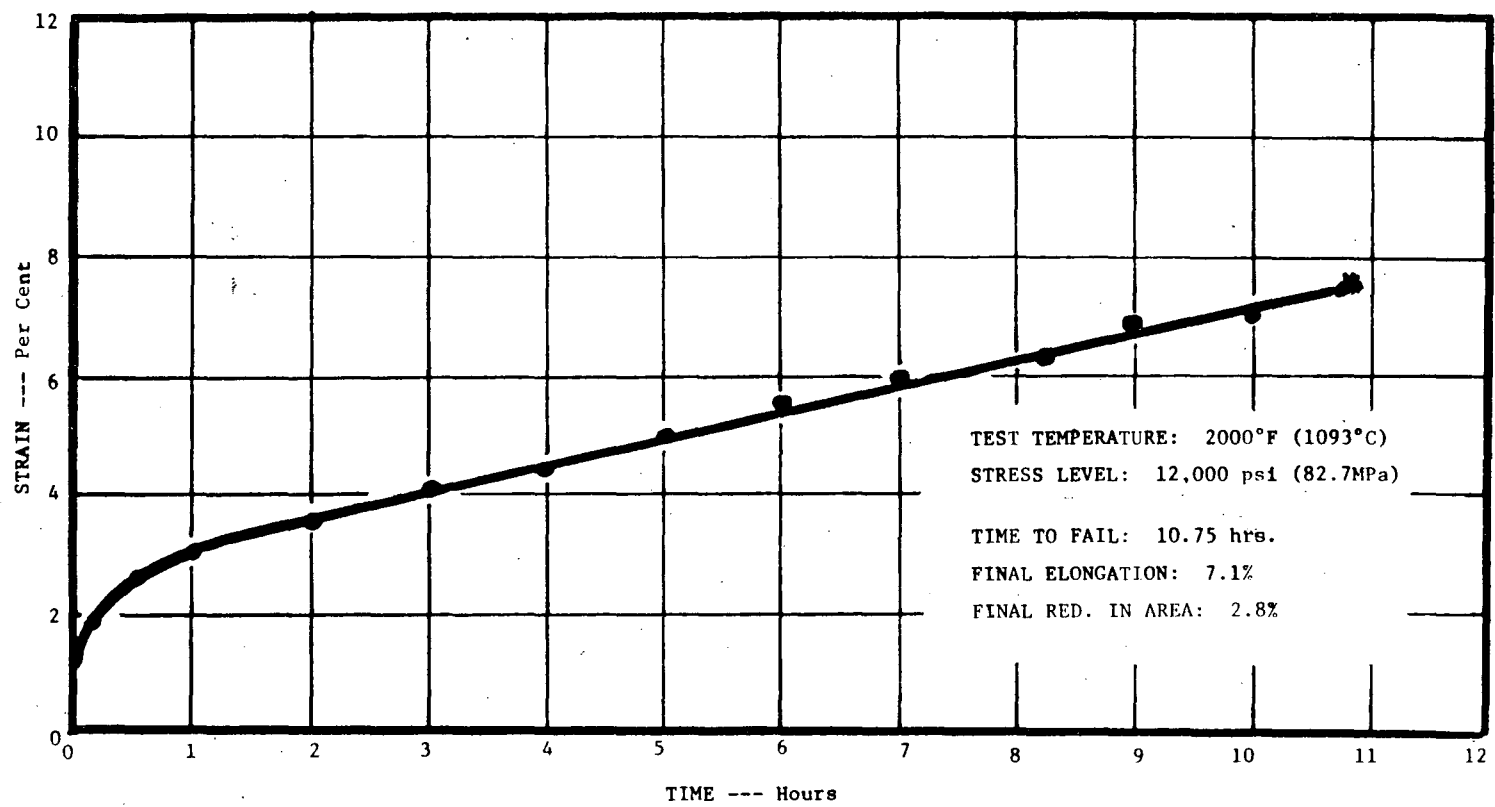


FIGURE 14: CREEP CURVE FOR NiCrAlY AT AN APPLIED STRESS OF 12,000 PSI (82.7 MPa) AND A TEMPERATURE OF 2000°F (1093°C). MATERIAL IN THE AS-EXTRUDED AND ANNEALED (at 2450°F, 1343°C) CONDITION.

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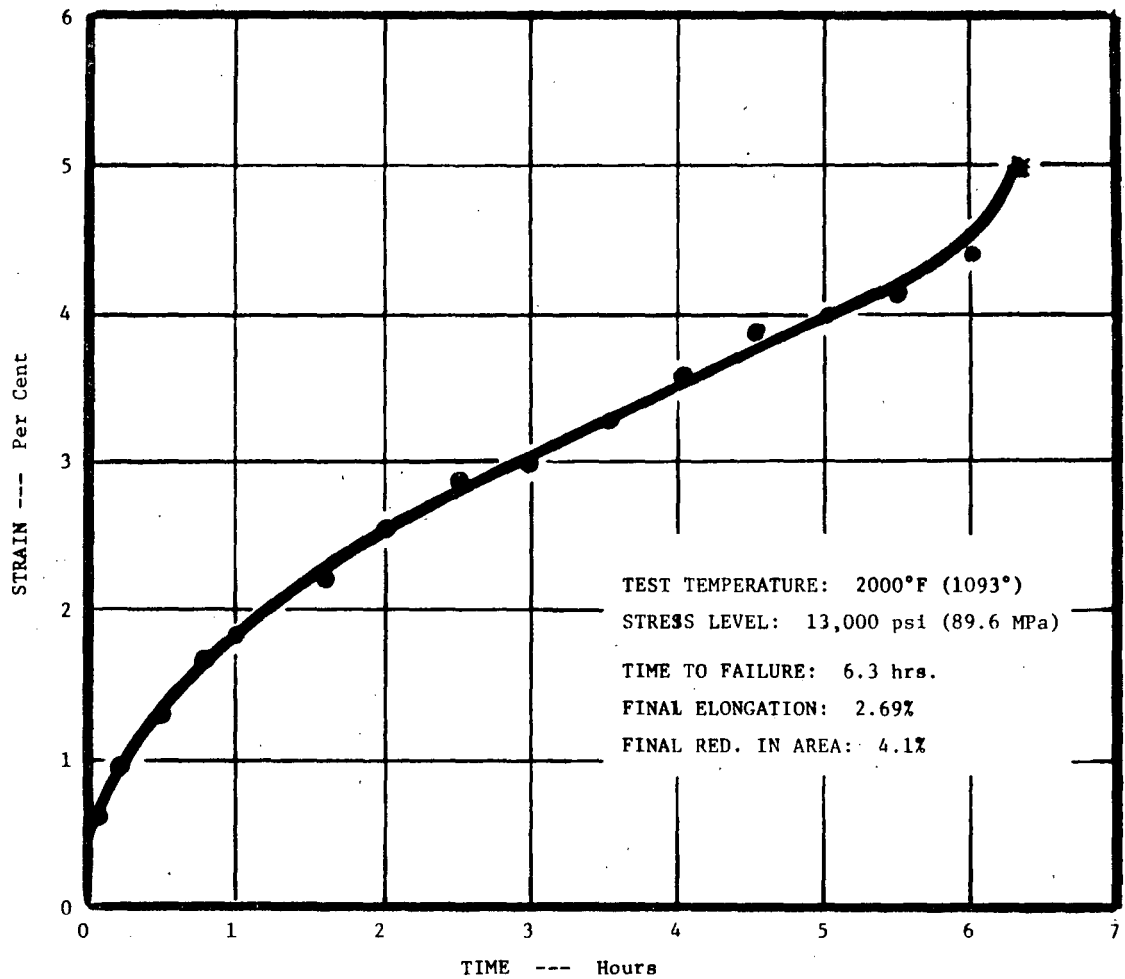


FIGURE 15: CREEP CURVE FOR NiCrAlY AT AN APPLIED STRESS OF 13,000 PSI (89.6 MPa) AND A TEMPERATURE OF 2000°F (1093°C). MATERIAL IN THE AS-EXTRUDED AND ANNEALED (at 2450°F, 1343°C) CONDITION.

NOT REPRODUCIBLE

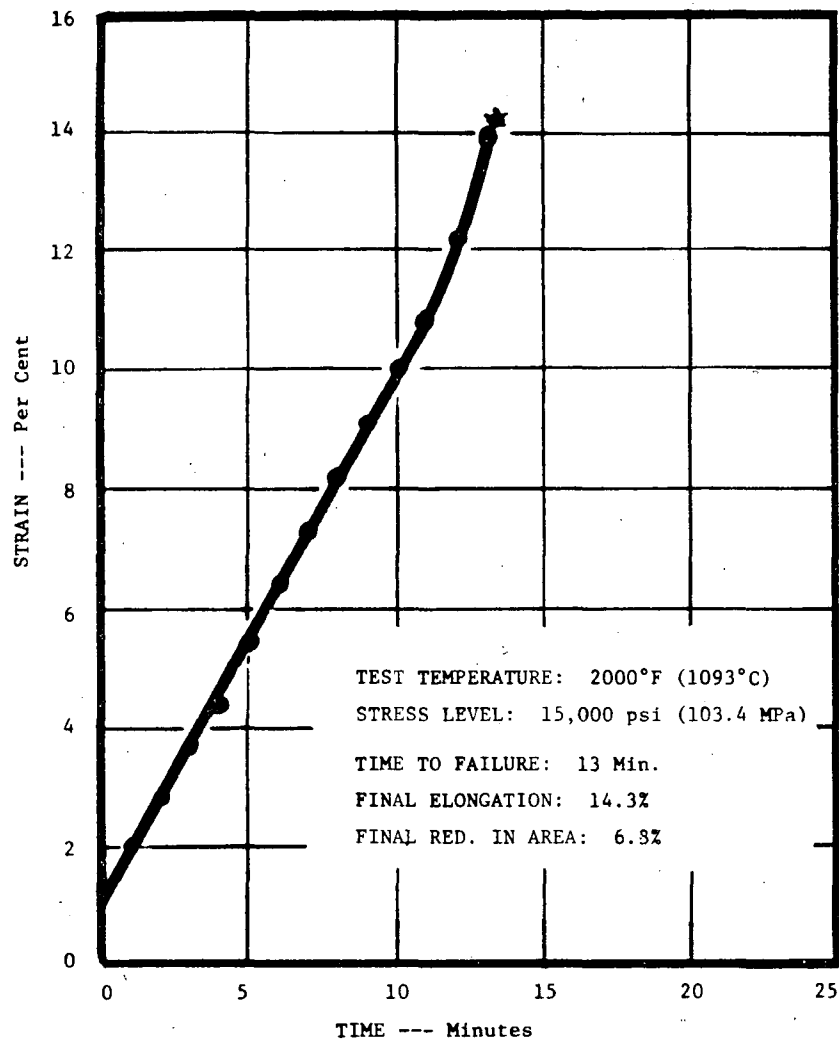


FIGURE 16: CREEP CURVE FOR NiCrAlY AT AN APPLIED LOAD OF 15,000 PSI (103.4 MPa), AND A TEMPERATURE OF 2000 °F (1093°C). MATERIAL IN THE AS-EXTRUDED AND ANNEALED (at 2450°F, 1343°C) CONDITION.

NOT REPRODUCIBLE

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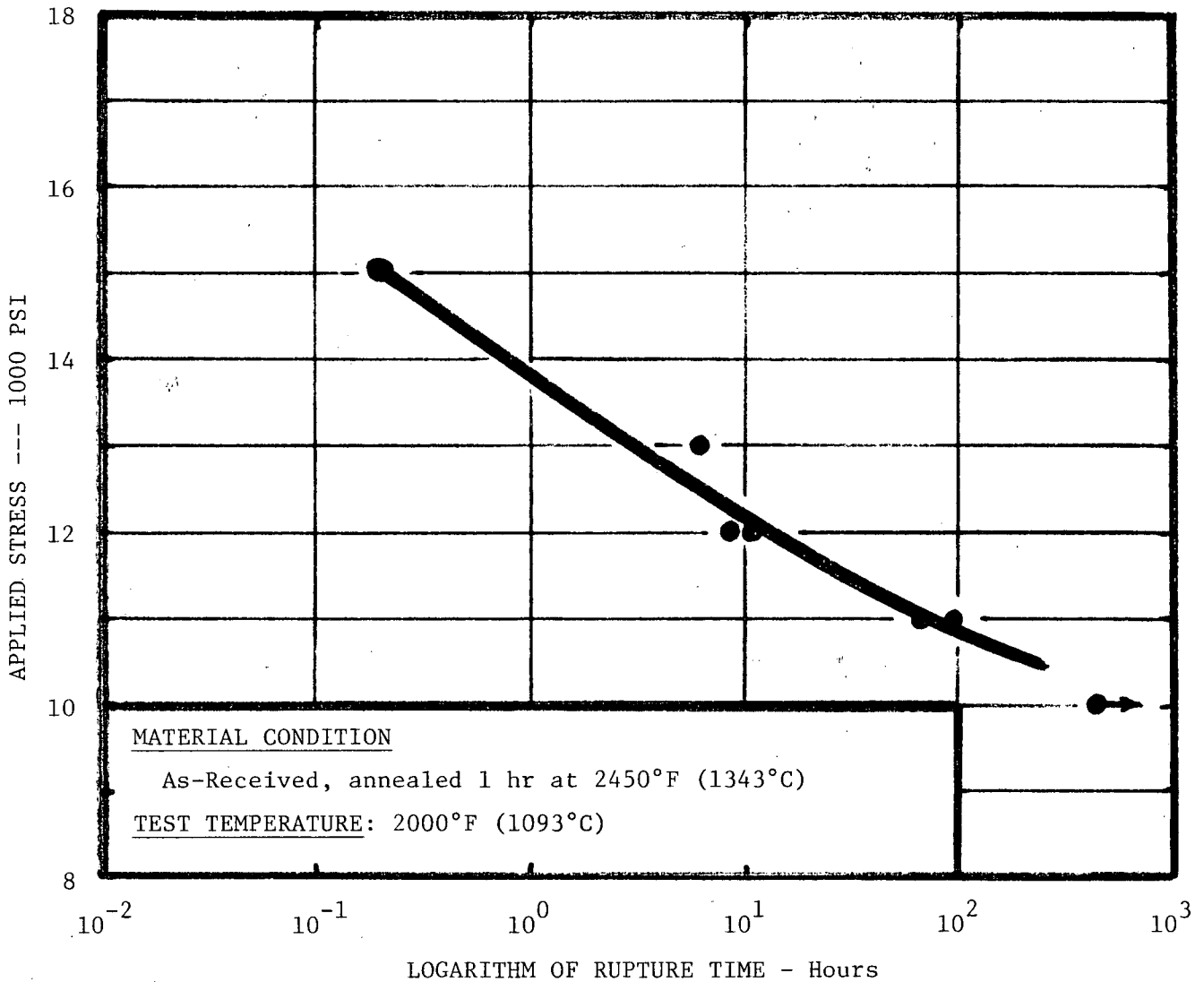


FIGURE 17: RELATION BETWEEN APPLIED STRESS AND (LOG) RUPTURE TIME FOR NiCrAlY AT 2000 F (1093°C) WITH THE MATERIAL IN THE AS-RECEIVED AND ANNEALED CONDITION.

NOT REPRODUCIBLE

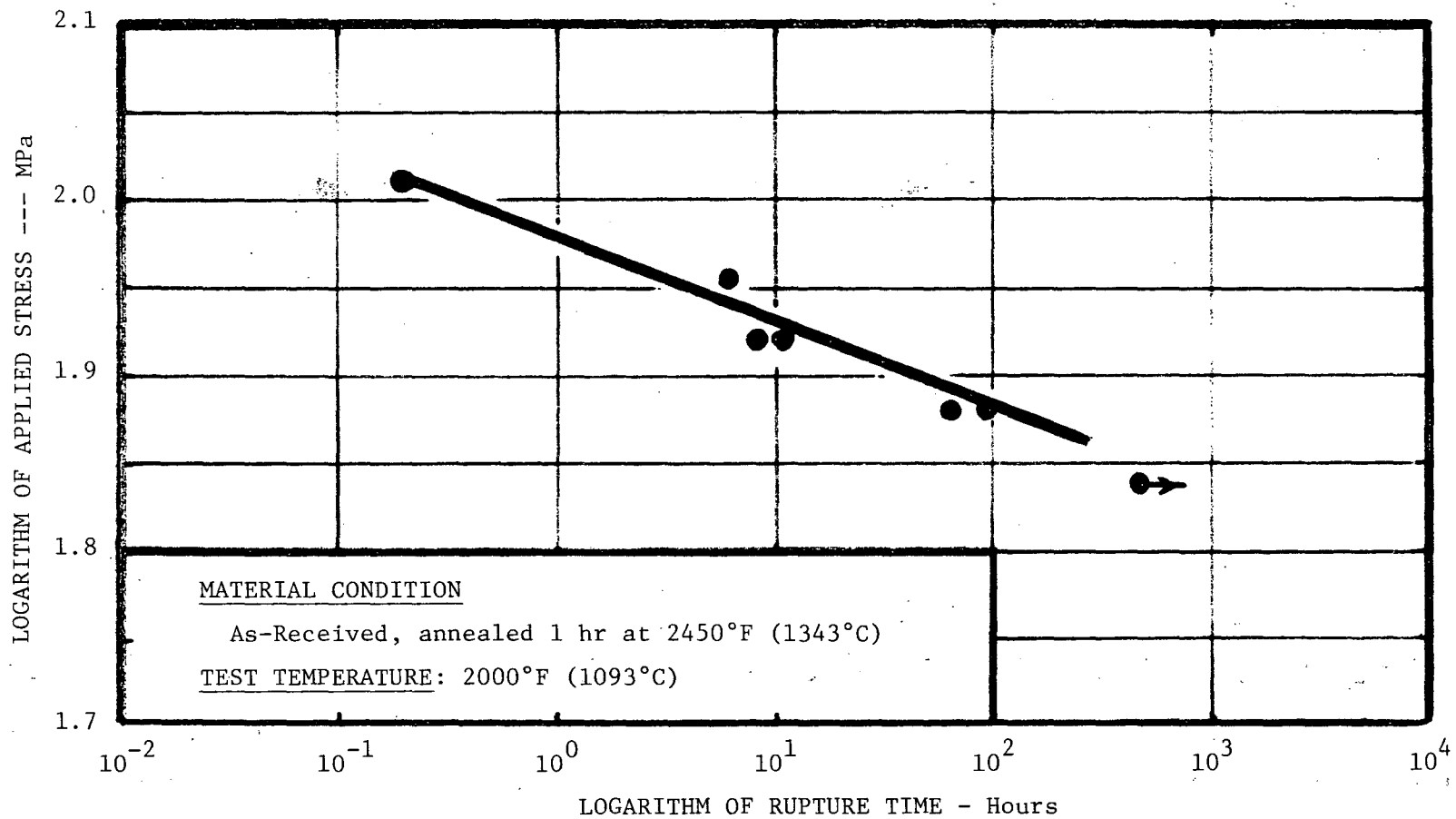


FIGURE 18: RELATION BETWEEN (LOG) APPLIED STRESS AND (LOG) RUPTURE TIME FOR NiCrAlY AT 2000°F (1093°C) WITH THE MATERIAL IN THE AS-EXTRUDED AND ANNEALED CONDITION

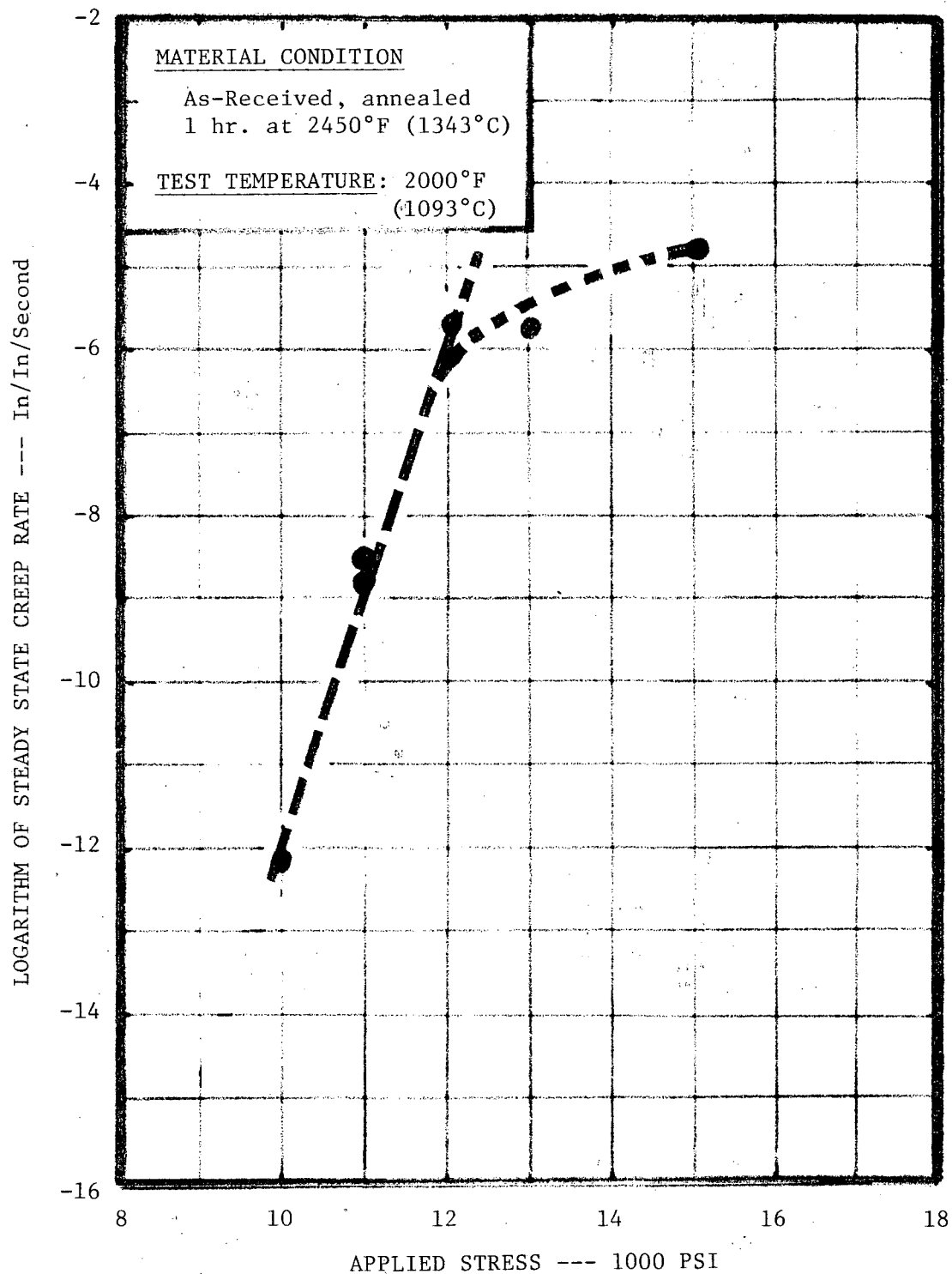


FIGURE 19: RELATION BETWEEN APPLIED STRESS AND (LOG) STEADY STATE CREEP RATE FOR NiCrAlY AT 2000°F (1093°C), WITH THE MATERIAL IN THE AS-EXTRUDED AND ANNEALED CONDITION.

NOT REPRODUCIBLE

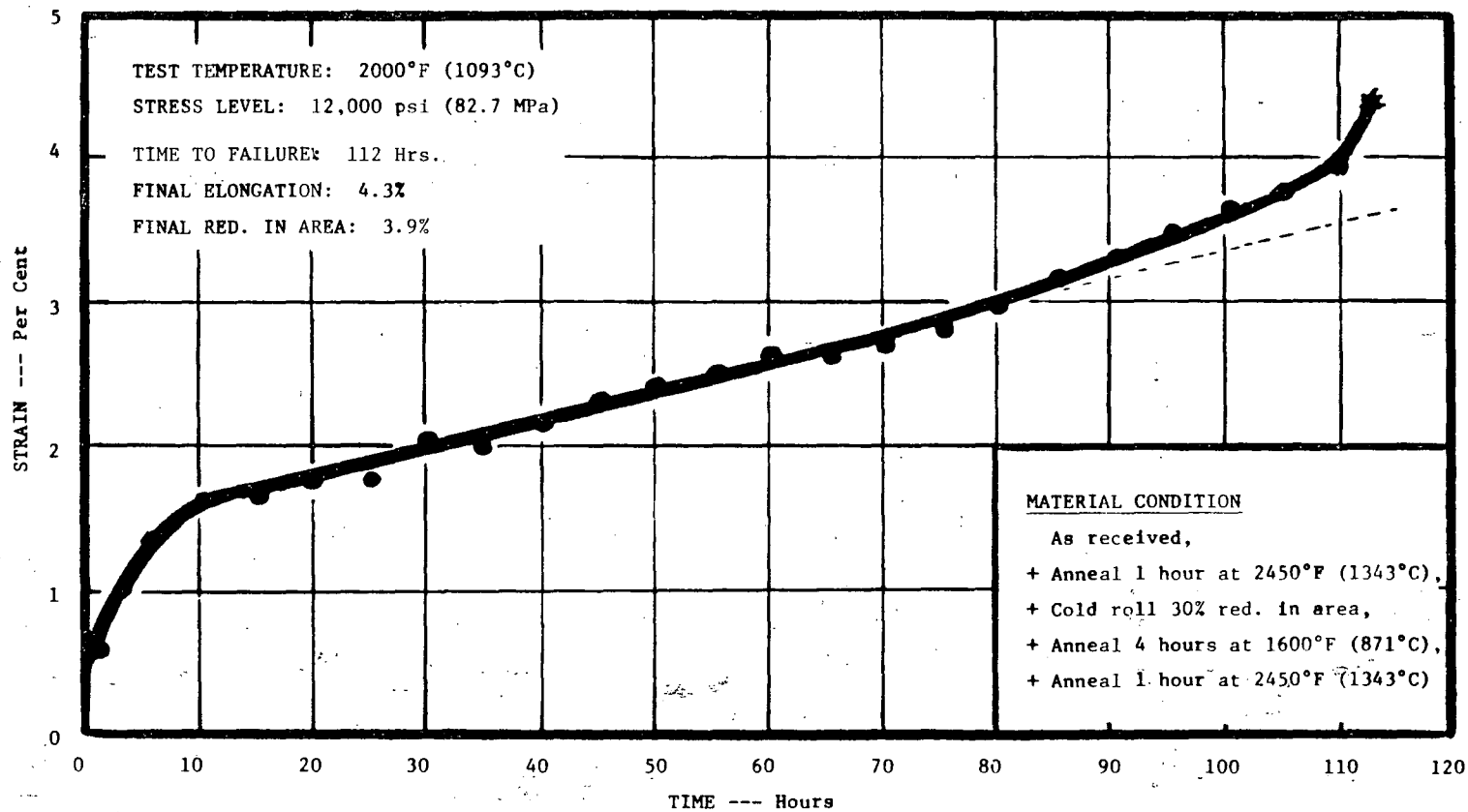


FIGURE 20: CREEP CURVE FOR NiCrAlY IN THE COLD ROLLED AND TWO-STEP-ANNEALED CONDITION, WITH THE APPLIED STRESS BEING 12,000 PSI (82.7 MPa), AND THE TEST TEMPERATURE BEING 2000°F (1093°C)

NOT REPRODUCIBLE

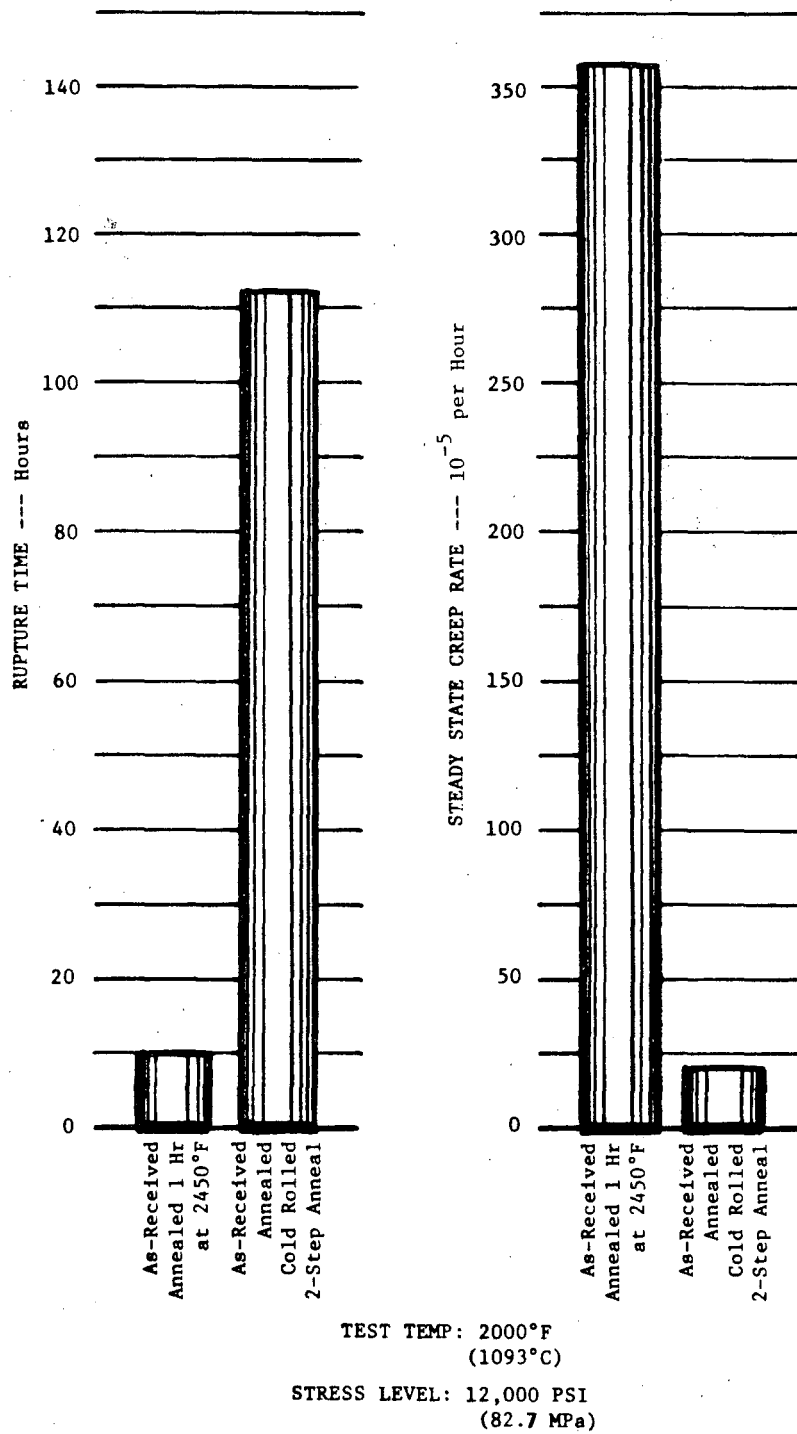


FIGURE 21: GRAPHICAL REPRESENTATION OF THE MANNER IN WHICH THE CREEP RESISTANCE OF THE NiCrAlY, TESTED AT 2000°F (1093°C) AND AT AN APPLIED STRESS OF 12,000 PSI (82.7 MPa) IS IMPROVED BY COLD WORKING AND TWO-STEP ANNEALING

TABLE XI
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FLAPS) CONDITION 109

PYLON HOOK LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON DTV)

CONFIGURATION 1.0 WITH FINS

COND. NO.	VA POUNDS	VBL POUNDS	VBR POUNDS	VCL POUNDS	VCR POUNDS	DCL POUNDS	DCR POUNDS	SA POUNDS	SCL POUNDS
109.11	-22267.6	-19148.1	-31598.7	0.0	0.0	6984.5	3948.9	10227.9	10130.1
109.21	-22267.6	-18244.6	-32502.3	0.0	0.0	6984.5	3948.9	10227.9	10130.1
109.31	-22267.6	-17341.0	-33405.8	0.0	0.0	6984.5	3948.9	10227.9	10130.1
109.41	-21344.5	-19711.5	-31958.4	0.0	0.0	6935.5	3997.9	9897.8	10460.2
109.51	-21344.5	-18808.0	-32862.0	0.0	0.0	6935.5	3997.9	9897.8	10460.2
109.61	-21344.5	-17904.4	-33765.5	0.0	0.0	6935.5	3997.9	9897.8	10460.2
109.71	-20421.4	-20274.9	-32318.1	0.0	0.0	6886.6	4046.9	9567.7	10790.2
109.81	-20421.4	-19371.4	-33221.7	0.0	0.0	6886.6	4046.9	9567.7	10790.2
109.91	-20421.4	-18467.8	-34125.3	0.0	0.0	6886.6	4046.9	9567.7	10790.2
109.12	-22267.6	-18760.4	-31986.5	0.0	0.0	6614.0	4319.4	7731.4	19829.7
109.22	-22267.6	-17856.8	-32890.0	0.0	0.0	6614.0	4319.4	7731.4	19829.7
109.32	-22267.6	-16953.3	-33793.6	0.0	0.0	6614.0	4319.4	7731.4	19829.7
109.42	-21344.5	-19323.8	-32346.2	0.0	0.0	6565.1	4368.4	7401.3	20159.8
109.52	-21344.5	-18420.2	-33249.7	0.0	0.0	6565.1	4368.4	7401.3	20159.8
109.62	-21344.5	-17516.6	-34153.3	0.0	0.0	6565.1	4368.4	7401.3	20159.8
109.72	-20421.4	-19887.1	-32705.9	0.0	0.0	6516.1	4417.4	7071.2	20489.9
109.82	-20421.4	-18983.6	-33609.4	0.0	0.0	6516.1	4417.4	7071.2	20489.9
109.92	-20421.4	-18080.0	-34513.0	0.0	0.0	6516.1	4417.4	7071.2	20489.9
109.13	-22267.6	-18372.6	-32374.2	0.0	0.0	6243.6	4689.9	5234.8	29529.3
109.23	-22267.6	-17469.1	-33277.7	0.0	0.0	6243.6	4689.9	5234.8	29529.3
109.33	-22267.6	-16565.5	-34181.3	0.0	0.0	6243.6	4689.9	5234.8	29529.3
109.43	-21344.5	-18936.0	-32733.9	0.0	0.0	6194.6	4738.9	4904.8	29859.4
109.53	-21344.5	-18032.5	-33637.4	0.0	0.0	6194.6	4738.9	4904.8	29859.4
109.63	-21344.5	-17128.9	-34541.0	0.0	0.0	6194.6	4738.9	4904.8	29859.4
109.73	-20421.4	-19499.4	-33093.6	0.0	0.0	6145.6	4787.9	4574.7	30189.5
109.83	-20421.4	-18595.9	-33997.2	0.0	0.0	6145.6	4787.9	4574.7	30189.5
109.93	-20421.4	-17692.3	-34900.7	0.0	0.0	6145.6	4787.9	4574.7	30189.5

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TABLE XI (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 109

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FINS

COND. NO.	CASE 1				CASE 2			
	V1 POUNDS	V2 POUNDS	V3 POUNDS	V4 POUNDS	V1 POUNDS	V2 POUNDS	V3 POUNDS	V4 POUNDS
109.11	9202.1	41268.7	-15318.5	39617.2	12334.2	38129.5	-18723.1	43028.8
109.21	8721.2	41967.4	-16703.5	40784.4	12000.6	38680.5	-20268.2	44356.5
109.31	8240.3	42666.1	-18088.6	41951.7	11667.0	39231.7	-21813.4	45684.2
109.41	8580.0	40449.2	-14529.4	40269.7	11712.1	37310.0	-17934.0	43681.4
109.51	8099.1	41147.9	-15914.4	41437.0	11378.5	37861.1	-19479.1	45009.0
109.61	7618.2	41846.6	-17299.5	42604.2	11044.9	38412.2	-21024.3	46336.7
109.71	7957.8	39629.7	-13740.4	40922.3	11089.9	36490.5	-17144.9	44333.9
109.81	7477.0	40328.4	-15125.4	42089.5	10756.3	37041.6	-18690.0	45661.5
109.91	6996.0	41027.1	-16510.5	43256.8	10422.7	37592.7	-20235.2	46989.3
109.12	6027.0	45773.7	-23511.3	46480.0	10272.5	41518.6	-28126.1	51104.4
109.22	5546.1	46472.5	-24896.3	47647.3	9938.8	42069.7	-29671.2	52432.1
109.32	5065.2	47171.2	-26281.4	48814.5	9605.2	42620.8	-31216.4	53759.8
109.42	5404.8	44954.3	-22722.2	47132.6	9650.3	40699.2	-27337.0	51756.9
109.52	4923.9	45653.0	-24107.2	48299.8	9316.7	41250.3	-28882.1	53084.6
109.62	4443.0	46351.7	-25492.3	49467.1	8983.1	41801.4	-30427.3	54412.3
109.72	4782.7	44134.8	-21933.1	47785.1	9028.2	39879.7	-26547.9	52409.5
109.82	4301.8	44833.5	-23318.2	48952.3	8694.6	40430.8	-28093.0	53737.1
109.92	3820.9	45532.2	-24703.3	50119.6	8361.0	40981.9	-29638.2	55064.8
109.13	2851.8	50278.8	-31704.1	53342.9	8210.7	44907.8	-37529.1	59180.0
109.23	2370.9	50977.5	-33089.1	54510.1	7877.1	45458.9	-39074.2	60507.6
109.33	1890.0	51676.3	-34474.2	55677.4	7543.5	46010.0	-40619.4	61835.3
109.43	2229.7	49459.3	-30915.0	53995.4	7588.6	44088.4	-36740.0	59832.5
109.53	1748.8	50158.1	-32300.0	55162.6	7254.9	44639.4	-38285.1	61160.2
109.63	1267.9	50856.8	-33685.1	56329.9	6921.3	45190.6	-39830.3	62487.9
109.73	1607.6	48639.9	-30125.9	54647.9	6966.4	43268.9	-35950.9	60485.1
109.83	1126.7	49338.6	-31511.0	55815.2	6632.8	43820.0	-37496.1	61812.7
109.93	645.8	50037.3	-32896.0	56982.4	6299.2	44371.1	-39041.2	63140.4

TABLE XI (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 109

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FINS

COND. NO.	S1 POUNDS	S2 POUNDS	CASE 1 AND 2 S3 POUNDS	S4 POUNDS	D3 POUNDS	D4 POUNDS
109.11	-9387.7	-9387.7	-1118.8	-1118.8	-5466.7	-5466.7
109.21	-9387.7	-9387.7	-1118.8	-1118.8	-5466.7	-5466.7
109.31	-9387.7	-9387.7	-1118.8	-1118.8	-5466.7	-5466.7
109.41	-9122.4	-9122.4	-1384.2	-1384.2	-5466.7	-5466.7
109.51	-9122.4	-9122.4	-1384.2	-1384.2	-5466.7	-5466.7
109.61	-9122.4	-9122.4	-1384.2	-1384.2	-5466.7	-5466.7
109.71	-8857.0	-8857.0	-1649.6	-1649.6	-5466.7	-5466.7
109.81	-8857.0	-8857.0	-1649.6	-1649.6	-5466.7	-5466.7
109.91	-8857.0	-8857.0	-1649.6	-1649.6	-5466.7	-5466.7
109.12	-7724.5	-7724.5	-6383.6	-6383.6	-5466.7	-5466.7
109.22	-7724.5	-7724.5	-6383.6	-6383.6	-5466.7	-5466.7
109.32	-7724.5	-7724.5	-6383.6	-6383.6	-5466.7	-5466.7
109.42	-7459.2	-7459.2	-6648.9	-6648.9	-5466.7	-5466.7
109.52	-7459.2	-7459.2	-6648.9	-6648.9	-5466.7	-5466.7
109.62	-7459.2	-7459.2	-6648.9	-6648.9	-5466.7	-5466.7
109.72	-7193.8	-7193.8	-6914.3	-6914.3	-5466.7	-5466.7
109.82	-7193.8	-7193.8	-6914.3	-6914.3	-5466.7	-5466.7
109.92	-7193.8	-7193.8	-6914.3	-6914.3	-5466.7	-5466.7
109.13	-6061.3	-6061.3	-11648.3	-11648.3	-5466.7	-5466.7
109.23	-6061.3	-6061.3	-11648.3	-11648.3	-5466.7	-5466.7
109.33	-6061.3	-6061.3	-11648.3	-11648.3	-5466.7	-5466.7
109.43	-5796.0	-5796.0	-11913.7	-11913.7	-5466.7	-5466.7
109.53	-5796.0	-5796.0	-11913.7	-11913.7	-5466.7	-5466.7
109.63	-5796.0	-5796.0	-11913.7	-11913.7	-5466.7	-5466.7
109.73	-5530.6	-5530.6	-12179.1	-12179.1	-5466.7	-5466.7
109.83	-5530.6	-5530.6	-12179.1	-12179.1	-5466.7	-5466.7
109.93	-5530.6	-5530.6	-12179.1	-12179.1	-5466.7	-5466.7

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TABLE XI (CONTINUED)
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FINS) CONDITION 109

INERTIA AND AIRLOADS - ULTIMATE

INERTIA LOADS - PLUS FWD, LEFT AND DOWN
AIRLOAD FORCES - PLUS AFT, RIGHT AND UP
AIRLOAD MOMENTS - PLUS NOSE UP AND NOSE RIGHT

CONFIGURATION 1.0 WITH FINS

COND. NO.	PNX FWD. POUNDS	PNY LEFT POUNDS	PNZ DOWN POUNDS	PX AFT POUNDS	PY RIGHT POUNDS	PZ UP POUNDS	MY NOSE UP INCH-LBS.	MZ NOSE RIGHT INCH-LBS.
109.11	0.0	27440.0	73500.0	10933.5	7082.1	485.6	2.778858E 04	-9.428593E 05
109.21	0.0	27440.0	73500.0	10933.5	7082.1	485.6	2.778858E 04	-9.428593E 05
109.31	0.0	27440.0	73500.0	10933.5	7082.1	485.6	2.778858E 04	-9.428593E 05
109.41	0.0	27440.0	73500.0	10933.5	7082.1	485.6	2.778858E 04	-9.428593E 05
109.51	0.0	27440.0	73500.0	10933.5	7082.1	485.6	2.778858E 04	-9.428593E 05
109.61	0.0	27440.0	73500.0	10933.5	7082.1	485.6	2.778858E 04	-9.428593E 05
109.71	0.0	27440.0	73500.0	10933.5	7082.1	485.6	2.778858E 04	-9.428593E 05
109.81	0.0	27440.0	73500.0	10933.5	7082.1	485.6	2.778858E 04	-9.428593E 05
109.91	0.0	27440.0	73500.0	10933.5	7082.1	485.6	2.778858E 04	-9.428593E 05
109.12	0.0	27440.0	73500.0	10933.5	-121.0	485.6	2.778858E 04	4.498382E 04
109.22	0.0	27440.0	73500.0	10933.5	-121.0	485.6	2.778858E 04	4.498382E 04
109.32	0.0	27440.0	73500.0	10933.5	-121.0	485.6	2.778858E 04	4.498382E 04
109.42	0.0	27440.0	73500.0	10933.5	-121.0	485.6	2.778858E 04	4.498382E 04
109.52	0.0	27440.0	73500.0	10933.5	-121.0	485.6	2.778858E 04	4.498382E 04
109.62	0.0	27440.0	73500.0	10933.5	-121.0	485.6	2.778858E 04	4.498382E 04
109.72	0.0	27440.0	73500.0	10933.5	-121.0	485.6	2.778858E 04	4.498382E 04
109.82	0.0	27440.0	73500.0	10933.5	-121.0	485.6	2.778858E 04	4.498382E 04
109.92	0.0	27440.0	73500.0	10933.5	-121.0	485.6	2.778858E 04	4.498382E 04
109.13	0.0	27440.0	73500.0	10933.5	-7324.2	485.6	2.778858E 04	1.032827E 06
109.23	0.0	27440.0	73500.0	10933.5	-7324.2	485.6	2.778858E 04	1.032827E 06
109.33	0.0	27440.0	73500.0	10933.5	-7324.2	485.6	2.778858E 04	1.032827E 06
109.43	0.0	27440.0	73500.0	10933.5	-7324.2	485.6	2.778858E 04	1.032827E 06
109.53	0.0	27440.0	73500.0	10933.5	-7324.2	485.6	2.778858E 04	1.032827E 06
109.63	0.0	27440.0	73500.0	10933.5	-7324.2	485.6	2.778858E 04	1.032827E 06
109.73	0.0	27440.0	73500.0	10933.5	-7324.2	485.6	2.778858E 04	1.032827E 06
109.83	0.0	27440.0	73500.0	10933.5	-7324.2	485.6	2.778858E 04	1.032827E 06
109.93	0.0	27440.0	73500.0	10933.5	-7324.2	485.6	2.778858E 04	1.032827E 06

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TABLE XI (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 109

PYLON HOOK LOADS - AERODYNAMIC CONSIDERATIONS

CONFIGURATION 1.0 WITH FINS

COND. NO.	RHO SLUGS/FT**3	VELOCITY KEAS	XCP INCHES	YCP INCHES	ZCP INCHES	ALPHA DEGREES	BETA DEGREES
109.11	0.0007699	247.260	170.210	0.000	-26.000	-0.900	-7.550
109.21	0.0007699	247.260	170.210	0.000	-26.000	-0.900	-7.550
109.31	0.0007699	247.260	170.210	0.000	-26.000	-0.900	-7.550
109.41	0.0007699	247.260	170.210	0.000	-26.000	-0.900	-7.550
109.51	0.0007699	247.260	170.210	0.000	-26.000	-0.900	-7.550
109.61	0.0007699	247.260	170.210	0.000	-26.000	-0.900	-7.550
109.71	0.0007699	247.260	170.210	0.000	-26.000	-0.900	-7.550
109.81	0.0007699	247.260	170.210	0.000	-26.000	-0.900	-7.550
109.91	0.0007699	247.260	170.210	0.000	-26.000	-0.900	-7.550
109.12	0.0007699	247.260	170.210	0.000	-26.000	-0.900	0.000
109.22	0.0007699	247.260	170.210	0.000	-26.000	-0.900	0.000
109.32	0.0007699	247.260	170.210	0.000	-26.000	-0.900	0.000
109.42	0.0007699	247.260	170.210	0.000	-26.000	-0.900	0.000
109.52	0.0007699	247.260	170.210	0.000	-26.000	-0.900	0.000
109.62	0.0007699	247.260	170.210	0.000	-26.000	-0.900	0.000
109.72	0.0007699	247.260	170.210	0.000	-26.000	-0.900	0.000
109.82	0.0007699	247.260	170.210	0.000	-26.000	-0.900	0.000
109.92	0.0007699	247.260	170.210	0.000	-26.000	-0.900	0.000
109.13	0.0007699	247.260	170.210	0.000	-26.000	-0.900	7.550
109.23	0.0007699	247.260	170.210	0.000	-26.000	-0.900	7.550
109.33	0.0007699	247.260	170.210	0.000	-26.000	-0.900	7.550
109.43	0.0007699	247.260	170.210	0.000	-26.000	-0.900	7.550
109.53	0.0007699	247.260	170.210	0.000	-26.000	-0.900	7.550
109.63	0.0007699	247.260	170.210	0.000	-26.000	-0.900	7.550
109.73	0.0007699	247.260	170.210	0.000	-26.000	-0.900	7.550
109.83	0.0007699	247.260	170.210	0.000	-26.000	-0.900	7.550
109.93	0.0007699	247.260	170.210	0.000	-26.000	-0.900	7.550

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TABLE XI (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 109

PYLON HOOK LOADS - INERTIA CONSIDERATIONS

CONFIGURATION 1.0 WITH FINS

COND. NO.	DTV WT. POUNDS	ULTIMATE NX	LOAD NY	FACTOR NZ	XCG INCHES	YCG INCHES	ZCG INCHES
109.11	49000.0	0.00	0.56	1.50	167.560	-0.650	-27.350
109.21	49000.0	0.00	0.56	1.50	167.560	0.000	-27.350
109.31	49000.0	0.00	0.56	1.50	167.560	0.650	-27.350
109.41	49000.0	0.00	0.56	1.50	170.210	-0.650	-27.350
109.51	49000.0	0.00	0.56	1.50	170.210	0.000	-27.350
109.61	49000.0	0.00	0.56	1.50	170.210	0.650	-27.350
109.71	49000.0	0.00	0.56	1.50	172.860	-0.650	-27.350
109.81	49000.0	0.00	0.56	1.50	172.860	0.000	-27.350
109.91	49000.0	0.00	0.56	1.50	172.860	0.650	-27.350
109.12	49000.0	0.00	0.56	1.50	167.560	-0.650	-27.350
109.22	49000.0	0.00	0.56	1.50	167.560	0.000	-27.350
109.32	49000.0	0.00	0.56	1.50	167.560	0.650	-27.350
109.42	49000.0	0.00	0.56	1.50	170.210	-0.650	-27.350
109.52	49000.0	0.00	0.56	1.50	170.210	0.000	-27.350
109.62	49000.0	0.00	0.56	1.50	170.210	0.650	-27.350
109.72	49000.0	0.00	0.56	1.50	172.860	-0.650	-27.350
109.82	49000.0	0.00	0.56	1.50	172.860	0.000	-27.350
109.92	49000.0	0.00	0.56	1.50	172.860	0.650	-27.350
109.13	49000.0	0.00	0.56	1.50	167.560	-0.650	-27.350
109.23	49000.0	0.00	0.56	1.50	167.560	0.000	-27.350
109.33	49000.0	0.00	0.56	1.50	167.560	0.650	-27.350
109.43	49000.0	0.00	0.56	1.50	170.210	-0.650	-27.350
109.53	49000.0	0.00	0.56	1.50	170.210	0.000	-27.350
109.63	49000.0	0.00	0.56	1.50	170.210	0.650	-27.350
109.73	49000.0	0.00	0.56	1.50	172.860	-0.650	-27.350
109.83	49000.0	0.00	0.56	1.50	172.860	0.000	-27.350
109.93	49000.0	0.00	0.56	1.50	172.860	0.650	-27.350

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TABLE XII
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FLAPS) CONDITION 110

PYLON HOOK LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON DTV)

CONFIGURATION 1.0 WITH FINS

COND. NO.	VA POUNDS	VBL POUNDS	VBR POUNDS	VCL POUNDS	VCR POUNDS	DCL POUNDS	DCR POUNDS	SA POUNDS	SCL POUNDS
110.11	-24488.5	-31740.3	-14360.4	0.0	0.0	882.5	2814.2	-6508.7	-25077.4
110.21	-24488.5	-30836.8	-15264.0	0.0	0.0	882.5	2814.2	-6508.7	-25077.4
110.31	-24488.5	-29933.2	-16167.6	0.0	0.0	882.5	2814.2	-6508.7	-25077.4
110.41	-23565.4	-32100.0	-14923.9	0.0	0.0	931.5	2765.3	-6178.6	-25407.5
110.51	-23565.4	-31196.5	-15827.4	0.0	0.0	931.5	2765.3	-6178.6	-25407.5
110.61	-23565.4	-30292.9	-16731.0	0.0	0.0	931.5	2765.3	-6178.6	-25407.5
110.71	-22642.3	-32459.8	-15487.2	0.0	0.0	980.4	2716.3	-5848.6	-25737.6
110.81	-22642.3	-31556.2	-16390.8	0.0	0.0	980.4	2716.3	-5848.6	-25737.6
110.91	-22642.3	-30652.6	-17294.3	0.0	0.0	980.4	2716.3	-5848.6	-25737.6
110.12	-24488.5	-31514.9	-14585.9	0.0	0.0	667.1	3029.6	-7959.9	-19439.2
110.22	-24488.5	-30611.4	-15489.4	0.0	0.0	667.1	3029.6	-7959.9	-19439.2
110.32	-24488.5	-29707.8	-16393.0	0.0	0.0	667.1	3029.6	-7959.9	-19439.2
110.42	-23565.4	-31874.6	-15149.2	0.0	0.0	716.1	2980.6	-7629.8	-19769.3
110.52	-23565.4	-30971.1	-16052.8	0.0	0.0	716.1	2980.6	-7629.8	-19769.3
110.62	-23565.4	-30067.5	-16956.4	0.0	0.0	716.1	2980.6	-7629.8	-19769.3
110.72	-22642.3	-32234.4	-15712.6	0.0	0.0	765.1	2931.6	-7299.7	-20099.3
110.82	-22642.3	-31330.8	-16616.2	0.0	0.0	765.1	2931.6	-7299.7	-20099.3
110.92	-22642.3	-30427.2	-17519.7	0.0	0.0	765.1	2931.6	-7299.7	-20099.3
110.13	-24488.5	-31289.5	-14811.2	0.0	0.0	451.8	3244.9	-9411.1	-13801.0
110.23	-24488.5	-30386.0	-15714.8	0.0	0.0	451.8	3244.9	-9411.1	-13801.0
110.33	-24488.5	-29482.4	-16618.4	0.0	0.0	451.8	3244.9	-9411.1	-13801.0
110.43	-23565.4	-31649.2	-15374.6	0.0	0.0	500.8	3196.0	-9081.0	-14131.0
110.53	-23565.4	-30745.7	-16278.2	0.0	0.0	500.8	3196.0	-9081.0	-14131.0
110.63	-23565.4	-29842.1	-17181.8	0.0	0.0	500.8	3196.0	-9081.0	-14131.0
110.73	-22642.3	-32009.0	-15938.0	0.0	0.0	549.7	3147.0	-8750.9	-14461.1
110.83	-22642.3	-31105.4	-16841.6	0.0	0.0	549.7	3147.0	-8750.9	-14461.1
110.93	-22642.3	-30201.9	-17745.1	0.0	0.0	549.7	3147.0	-8750.9	-14461.1

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TABLE XII (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 110

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FINS

COND. NO.	CASE 1				CASE 2			
	V1 POUNDS	V2 POUNDS	V3 POUNDS	V4 POUNDS	V1 POUNDS	V2 POUNDS	V3 POUNDS	V4 POUNDS
110.11	42842.4	-3684.9	56932.3	-23745.4	37680.2	1489.0	62543.5	-29368.3
110.21	42361.5	-2986.2	55547.3	-22578.2	37346.6	2040.1	60998.4	-28040.7
110.31	41880.6	-2287.5	54162.1	-21410.9	37013.0	2591.2	59453.2	-26712.9
110.41	42047.3	-4282.7	57483.8	-22904.1	36885.1	891.2	63095.0	-28527.0
110.51	41566.4	-3584.0	56098.8	-21736.8	36551.5	1442.3	61549.9	-27199.3
110.61	41085.5	-2885.2	54713.7	-20569.6	36217.9	1993.4	60004.7	-25871.6
110.71	41252.2	-4880.5	58035.4	-22062.8	36090.0	293.4	63646.7	-27685.7
110.81	40771.3	-4181.8	56650.4	-20895.6	35756.4	844.5	62101.5	-26358.0
110.91	40290.4	-3483.0	55265.3	-19728.3	35422.8	1395.6	60556.3	-25030.3
110.12	40996.7	-1066.2	52169.9	-19756.2	36481.7	3459.1	57077.7	-24674.1
110.22	40515.8	-367.5	50784.9	-18588.9	36148.1	4010.1	55532.5	-23346.4
110.32	40034.9	331.3	49399.8	-17421.6	35814.5	4561.3	53987.3	-22018.7
110.42	40201.6	-1664.0	52721.5	-18914.9	35686.6	2861.3	57629.3	-23832.8
110.52	39720.7	-965.2	51336.5	-17747.6	35353.0	3412.4	56084.1	-22505.1
110.62	39239.8	-266.5	49951.4	-16580.3	35019.4	3963.5	54538.9	-21177.4
110.72	39406.5	-2261.7	53273.1	-18073.5	34891.5	2263.5	58180.8	-22991.5
110.82	38925.6	-1563.0	51888.0	-16906.3	34557.9	2814.6	56635.7	-21663.8
110.92	38444.7	-864.3	50502.9	-15739.0	34224.3	3365.7	55090.5	-20336.1
110.13	39151.1	1552.6	47407.6	-15766.9	35283.3	5429.1	51611.9	-19979.9
110.23	38670.2	2251.3	46022.6	-14599.7	34949.7	5980.2	50066.7	-18652.3
110.33	38189.3	2950.0	44637.5	-13432.4	34616.0	6531.3	48521.5	-17324.5
110.43	38356.0	954.8	47959.1	-14925.6	34488.2	4831.4	52163.4	-19138.6
110.53	37875.1	1653.5	46574.1	-13758.3	34154.5	5382.5	50618.3	-17810.9
110.63	37394.2	2352.3	45189.0	-12591.1	33820.9	5933.6	49073.1	-16483.2
110.73	37560.9	357.0	48510.8	-14084.3	33693.1	4233.6	52715.0	-18297.3
110.83	37080.0	1055.7	47125.7	-12917.1	33359.5	4784.7	51169.9	-16969.6
110.93	36599.1	1754.5	45740.6	-11749.8	33025.8	5335.8	49624.7	-15641.9

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TABLE XII (CONTINUED)
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FINS) CONDITION 110

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FINS

COND. NO.	S1 POUNDS	S2 POUNDS	CASE 1 AND 2 S3 POUNDS	S4 POUNDS	D3 POUNDS	D4 POUNDS
110.11	6969.6	6969.6	9151.1	9151.1	-1848.4	-1848.4
110.21	6969.6	6969.6	9151.1	9151.1	-1848.4	-1848.4
110.31	6969.6	6969.6	9151.1	9151.1	-1848.4	-1848.4
110.41	6704.2	6704.2	9416.4	9416.4	-1848.4	-1848.4
110.51	6704.2	6704.2	9416.4	9416.4	-1848.4	-1848.4
110.61	6704.2	6704.2	9416.4	9416.4	-1848.4	-1848.4
110.71	6438.9	6438.9	9681.8	9681.8	-1848.4	-1848.4
110.81	6438.9	6438.9	9681.8	9681.8	-1848.4	-1848.4
110.91	6438.9	6438.9	9681.8	9681.8	-1848.4	-1848.4
110.12	7936.4	7936.4	6090.7	6090.7	-1848.4	-1848.4
110.22	7936.4	7936.4	6090.7	6090.7	-1848.4	-1848.4
110.32	7936.4	7936.4	6090.7	6090.7	-1848.4	-1848.4
110.42	7671.0	7671.0	6356.1	6356.1	-1848.4	-1848.4
110.52	7671.0	7671.0	6356.1	6356.1	-1848.4	-1848.4
110.62	7671.0	7671.0	6356.1	6356.1	-1848.4	-1848.4
110.72	7405.7	7405.7	6621.5	6621.5	-1848.4	-1848.4
110.82	7405.7	7405.7	6621.5	6621.5	-1848.4	-1848.4
110.92	7405.7	7405.7	6621.5	6621.5	-1848.4	-1848.4
110.13	8903.2	8903.2	3030.4	3030.4	-1848.4	-1848.4
110.23	8903.2	8903.2	3030.4	3030.4	-1848.4	-1848.4
110.33	8903.2	8903.2	3030.4	3030.4	-1848.4	-1848.4
110.43	8637.8	8637.8	3295.8	3295.8	-1848.4	-1848.4
110.53	8637.8	8637.8	3295.8	3295.8	-1848.4	-1848.4
110.63	8637.8	8637.8	3295.8	3295.8	-1848.4	-1848.4
110.73	8372.5	8372.5	3561.2	3561.2	-1848.4	-1848.4
110.83	8372.5	8372.5	3561.2	3561.2	-1848.4	-1848.4
110.93	8372.5	8372.5	3561.2	3561.2	-1848.4	-1848.4

TABLE XII (CONTINUED)
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FIN) CONDITION 110

INERTIA AND AIRLOADS - ULTIMATE

INERTIA LOADS - PLUS FWD, LEFT AND DOWN
AIRLOAD FORCES - PLUS AFT, RIGHT AND UP
AIRLOAD MOMENTS - PLUS NOSE UP AND NOSE RIGHT

CONFIGURATION 1.0 WITH FIN

COND. NO.	PNX FWD. POUNDS	PNY LEFT POUNDS	PNZ DOWN POUNDS	PX AFT POUNDS	PY RIGHT POUNDS	PZ UP POUNDS	MY NOSE UP INCH-LBS.	MZ NOSE RIGHT INCH-LBS.
110.11	0.0	-27440.0	73500.0	3696.7	4146.1	2910.6	-6.497577E 05	-5.590054E 05
110.21	0.0	-27440.0	73500.0	3696.7	4146.1	2910.6	-6.497577E 05	-5.590054E 05
110.31	0.0	-27440.0	73500.0	3696.7	4146.1	2910.6	-6.497577E 05	-5.590054E 05
110.41	0.0	-27440.0	73500.0	3696.7	4146.1	2910.6	-6.497577E 05	-5.590054E 05
110.51	0.0	-27440.0	73500.0	3696.7	4146.1	2910.6	-6.497577E 05	-5.590054E 05
110.61	0.0	-27440.0	73500.0	3696.7	4146.1	2910.6	-6.497577E 05	-5.590054E 05
110.71	0.0	-27440.0	73500.0	3696.7	4146.1	2910.6	-6.497577E 05	-5.590054E 05
110.81	0.0	-27440.0	73500.0	3696.7	4146.1	2910.6	-6.497577E 05	-5.590054E 05
110.91	0.0	-27440.0	73500.0	3696.7	4146.1	2910.6	-6.497577E 05	-5.590054E 05
110.12	0.0	-27440.0	73500.0	3696.7	-40.9	2910.6	-6.497577E 05	1.520952E 04
110.22	0.0	-27440.0	73500.0	3696.7	-40.9	2910.6	-6.497577E 05	1.520952E 04
110.32	0.0	-27440.0	73500.0	3696.7	-40.9	2910.6	-6.497577E 05	1.520952E 04
110.42	0.0	-27440.0	73500.0	3696.7	-40.9	2910.6	-6.497577E 05	1.520952E 04
110.52	0.0	-27440.0	73500.0	3696.7	-40.9	2910.6	-6.497577E 05	1.520952E 04
110.62	0.0	-27440.0	73500.0	3696.7	-40.9	2910.6	-6.497577E 05	1.520952E 04
110.72	0.0	-27440.0	73500.0	3696.7	-40.9	2910.6	-6.497577E 05	1.520952E 04
110.82	0.0	-27440.0	73500.0	3696.7	-40.9	2910.6	-6.497577E 05	1.520952E 04
110.92	0.0	-27440.0	73500.0	3696.7	-40.9	2910.6	-6.497577E 05	1.520952E 04
110.13	0.0	-27440.0	73500.0	3696.7	-4228.0	2910.6	-6.497577E 05	5.894247E 05
110.23	0.0	-27440.0	73500.0	3696.7	-4228.0	2910.6	-6.497577E 05	5.894247E 05
110.33	0.0	-27440.0	73500.0	3696.7	-4228.0	2910.6	-6.497577E 05	5.894247E 05
110.43	0.0	-27440.0	73500.0	3696.7	-4228.0	2910.6	-6.497577E 05	5.894247E 05
110.53	0.0	-27440.0	73500.0	3696.7	-4228.0	2910.6	-6.497577E 05	5.894247E 05
110.63	0.0	-27440.0	73500.0	3696.7	-4228.0	2910.6	-6.497577E 05	5.894247E 05
110.73	0.0	-27440.0	73500.0	3696.7	-4228.0	2910.6	-6.497577E 05	5.894247E 05
110.83	0.0	-27440.0	73500.0	3696.7	-4228.0	2910.6	-6.497577E 05	5.894247E 05
110.93	0.0	-27440.0	73500.0	3696.7	-4228.0	2910.6	-6.497577E 05	5.894247E 05

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TABLE XII (CONTINUED)
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FINS) CONDITION 110

PYLON HOOK LOADS - AERODYNAMIC CONSIDERATIONS

CONFIGURATION 1.0 WITH FINS

COND. NO.	RHO SLUGS/FT**3	VELOCITY KEAS	XCP INCHES	YCP INCHES	ZCP INCHES	ALPHA DEGREES	BETA DEGREES
110.11	0.0023769	143.775	170.210	0.000	-26.000	14.000	-12.980
110.21	0.0023769	143.775	170.210	0.000	-26.000	14.000	-12.980
110.31	0.0023769	143.775	170.210	0.000	-26.000	14.000	-12.980
110.41	0.0023769	143.775	170.210	0.000	-26.000	14.000	-12.980
110.51	0.0023769	143.775	170.210	0.000	-26.000	14.000	-12.980
110.61	0.0023769	143.775	170.210	0.000	-26.000	14.000	-12.980
110.71	0.0023769	143.775	170.210	0.000	-26.000	14.000	-12.980
110.81	0.0023769	143.775	170.210	0.000	-26.000	14.000	-12.980
110.91	0.0023769	143.775	170.210	0.000	-26.000	14.000	-12.980
110.12	0.0023769	143.775	170.210	0.000	-26.000	14.000	0.000
110.22	0.0023769	143.775	170.210	0.000	-26.000	14.000	0.000
110.32	0.0023769	143.775	170.210	0.000	-26.000	14.000	0.000
110.42	0.0023769	143.775	170.210	0.000	-26.000	14.000	0.000
110.52	0.0023769	143.775	170.210	0.000	-26.000	14.000	0.000
110.62	0.0023769	143.775	170.210	0.000	-26.000	14.000	0.000
110.72	0.0023769	143.775	170.210	0.000	-26.000	14.000	0.000
110.82	0.0023769	143.775	170.210	0.000	-26.000	14.000	0.000
110.92	0.0023769	143.775	170.210	0.000	-26.000	14.000	0.000
110.13	0.0023769	143.775	170.210	0.000	-26.000	14.000	12.980
110.23	0.0023769	143.775	170.210	0.000	-26.000	14.000	12.980
110.33	0.0023769	143.775	170.210	0.000	-26.000	14.000	12.980
110.43	0.0023769	143.775	170.210	0.000	-26.000	14.000	12.980
110.53	0.0023769	143.775	170.210	0.000	-26.000	14.000	12.980
110.63	0.0023769	143.775	170.210	0.000	-26.000	14.000	12.980
110.73	0.0023769	143.775	170.210	0.000	-26.000	14.000	12.980
110.83	0.0023769	143.775	170.210	0.000	-26.000	14.000	12.980
110.93	0.0023769	143.775	170.210	0.000	-26.000	14.000	12.980

TABLE XII (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 110

PYLON HOOK LOADS - INERTIA CONSIDERATIONS

CONFIGURATION 1.0 WITH FINS

COND. NO.	DTV WT. POUNDS	ULTIMATE NX	LOAD NY	FACTOR NZ	XCG INCHES	YCG INCHES	ZCG INCHES
110.11	49000.0	0.00	-0.56	1.50	167.560	-0.650	-27.350
110.21	49000.0	0.00	-0.56	1.50	167.560	0.000	-27.350
110.31	49000.0	0.00	-0.56	1.50	167.560	0.650	-27.350
110.41	49000.0	0.00	-0.56	1.50	170.210	-0.650	-27.350
110.51	49000.0	0.00	-0.56	1.50	170.210	0.000	-27.350
110.61	49000.0	0.00	-0.56	1.50	170.210	0.650	-27.350
110.71	49000.0	0.00	-0.56	1.50	172.860	-0.650	-27.350
110.81	49000.0	0.00	-0.56	1.50	172.860	0.000	-27.350
110.91	49000.0	0.00	-0.56	1.50	172.860	0.650	-27.350
110.12	49000.0	0.00	-0.56	1.50	167.560	-0.650	-27.350
110.22	49000.0	0.00	-0.56	1.50	167.560	0.000	-27.350
110.32	49000.0	0.00	-0.56	1.50	167.560	0.650	-27.350
110.42	49000.0	0.00	-0.56	1.50	170.210	-0.650	-27.350
110.52	49000.0	0.00	-0.56	1.50	170.210	0.000	-27.350
110.62	49000.0	0.00	-0.56	1.50	170.210	0.650	-27.350
110.72	49000.0	0.00	-0.56	1.50	172.860	-0.650	-27.350
110.82	49000.0	0.00	-0.56	1.50	172.860	0.000	-27.350
110.92	49000.0	0.00	-0.56	1.50	172.860	0.650	-27.350
110.13	49000.0	0.00	-0.56	1.50	167.560	-0.650	-27.350
110.23	49000.0	0.00	-0.56	1.50	167.560	0.000	-27.350
110.33	49000.0	0.00	-0.56	1.50	167.560	0.650	-27.350
110.43	49000.0	0.00	-0.56	1.50	170.210	-0.650	-27.350
110.53	49000.0	0.00	-0.56	1.50	170.210	0.000	-27.350
110.63	49000.0	0.00	-0.56	1.50	170.210	0.650	-27.350
110.73	49000.0	0.00	-0.56	1.50	172.860	-0.650	-27.350
110.83	49000.0	0.00	-0.56	1.50	172.860	0.000	-27.350
110.93	49000.0	0.00	-0.56	1.50	172.860	0.650	-27.350

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OF POOR QUALITY

TABLE XIII
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FLAPS) CONDITION 111

PYLON HOOK LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON DTV)

CONFIGURATION 1.0 WITH FINS

COND. NO.	VA POUNDS	VBL POUNDS	VBR POUNDS	VCL POUNDS	VCR POUNDS	DCL POUNDS	DCR POUNDS	SA POUNDS	SCL POUNDS
111.11	-22490.3	-34013.7	-16218.1	0.0	0.0	5233.5	6855.7	-5465.9	-29414.5
111.21	-22490.3	-33110.1	-17121.6	0.0	0.0	5233.5	6855.7	-5465.9	-29414.5
111.31	-22490.3	-32206.5	-18025.2	0.0	0.0	5233.5	6855.7	-5465.9	-29414.5
111.41	-21567.1	-34373.4	-16781.5	0.0	0.0	5282.4	6806.7	-5135.8	-29744.6
111.51	-21567.1	-33469.8	-17685.0	0.0	0.0	5282.4	6806.7	-5135.8	-29744.6
111.61	-21567.1	-32566.2	-18588.6	0.0	0.0	5282.4	6806.7	-5135.8	-29744.6
111.71	-20644.0	-34733.1	-17344.9	0.0	0.0	5331.4	6757.7	-4805.7	-30074.6
111.81	-20644.0	-33829.5	-18248.4	0.0	0.0	5331.4	6757.7	-4805.7	-30074.6
111.91	-20644.0	-32925.9	-19152.0	0.0	0.0	5331.4	6757.7	-4805.7	-30074.6
111.12	-22490.3	-33605.9	-16625.8	0.0	0.0	4843.9	7245.3	-8091.0	-19215.2
111.22	-22490.3	-32702.4	-17529.4	0.0	0.0	4843.9	7245.3	-8091.0	-19215.2
111.32	-22490.3	-31798.8	-18433.0	0.0	0.0	4843.9	7245.3	-8091.0	-19215.2
111.42	-21567.1	-33965.6	-17189.2	0.0	0.0	4892.9	7196.3	-7760.9	-19545.2
111.52	-21567.1	-33062.1	-18092.8	0.0	0.0	4892.9	7196.3	-7760.9	-19545.2
111.62	-21567.1	-32158.5	-18996.4	0.0	0.0	4892.9	7196.3	-7760.9	-19545.2
111.72	-20644.0	-34325.3	-17752.6	0.0	0.0	4941.9	7147.3	-7430.8	-19875.3
111.82	-20644.0	-33421.8	-18656.2	0.0	0.0	4941.9	7147.3	-7430.8	-19875.3
111.92	-20644.0	-32518.2	-19559.7	0.0	0.0	4941.9	7147.3	-7430.8	-19875.3
111.13	-22490.3	-33198.2	-17033.6	0.0	0.0	4454.3	7634.8	-10716.1	-9015.8
111.23	-22490.3	-32294.6	-17937.1	0.0	0.0	4454.3	7634.8	-10716.1	-9015.8
111.33	-22490.3	-31391.1	-18840.7	0.0	0.0	4454.3	7634.8	-10716.1	-9015.8
111.43	-21567.1	-33557.9	-17596.9	0.0	0.0	4503.3	7585.9	-10386.0	-9345.9
111.53	-21567.1	-32654.4	-18500.5	0.0	0.0	4503.3	7585.9	-10386.0	-9345.9
111.63	-21567.1	-31750.8	-19404.1	0.0	0.0	4503.3	7585.9	-10386.0	-9345.9
111.73	-20644.0	-33917.6	-18160.3	0.0	0.0	4552.3	7536.9	-10056.0	-9676.0
111.83	-20644.0	-33014.1	-19063.9	0.0	0.0	4552.3	7536.9	-10056.0	-9676.0
111.93	-20644.0	-32110.5	-19967.5	0.0	0.0	4552.3	7536.9	-10056.0	-9676.0

TABLE XIII (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINs) CONDITION 111

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FINs

COND. NO.	CASE 1				CASE 2			
	V1 POUNDS	V2 POUNDS	V3 POUNDS	V4 POUNDS	V1 POUNDS	V2 POUNDS	V3 POUNDS	V4 POUNDS
111.11	44015.9	-6098.3	62027.0	-25467.6	38344.5	-414.1	68191.7	-31645.1
111.21	43535.0	-5399.6	60642.0	-24300.4	38010.9	137.0	66646.6	-30317.5
111.31	43054.1	-4700.8	59256.9	-23133.1	37677.3	688.1	65101.4	-28989.8
111.41	43220.8	-6696.0	62578.6	-24626.3	37549.4	-1011.8	68743.3	-30803.8
111.51	42739.9	-5997.3	61193.5	-23459.0	37215.8	-460.7	67198.1	-29476.1
111.61	42259.0	-5298.6	59808.4	-22291.8	36882.2	90.4	65652.9	-28148.4
111.71	42425.7	-7293.8	63130.1	-23784.9	36754.3	-1609.6	69294.8	-29962.5
111.81	41944.8	-6595.1	61745.1	-22617.7	36420.7	-1058.5	67749.6	-28634.8
111.91	41463.9	-5896.4	60360.0	-21450.4	36087.1	-507.4	66204.4	-27307.1
111.12	40677.2	-1361.1	53412.1	-18251.2	36176.5	3149.7	58304.3	-23153.5
111.22	40196.3	-662.4	52027.1	-17083.9	35842.9	3700.8	56759.1	-21825.8
111.32	39715.4	36.4	50642.0	-15916.7	35509.3	4252.0	55213.9	-20498.1
111.42	39882.1	-1958.8	53963.7	-17409.9	35381.4	2552.0	58855.8	-22312.2
111.52	39401.2	-1260.1	52578.6	-16242.6	35047.8	3103.1	57310.7	-20984.5
111.62	38920.3	-561.4	51193.5	-15075.3	34714.2	3654.2	55765.5	-19656.8
111.72	39087.0	-2556.6	54515.2	-16568.5	34586.3	1954.2	59407.4	-21470.8
111.82	38606.1	-1857.9	53130.2	-15401.3	34252.7	2505.3	57862.2	-20143.2
111.92	38125.1	-1159.2	51745.1	-14234.0	33919.1	3056.4	56317.0	-18815.5
111.13	37338.4	3376.1	44797.3	-11034.8	34008.6	6713.5	48416.8	-14661.9
111.23	36857.6	4074.8	43412.2	-9867.6	33674.9	7264.6	46871.7	-13334.2
111.33	36376.6	4773.5	42027.1	-8700.3	33341.3	7815.7	45326.5	-12006.5
111.43	36543.3	2778.3	45348.8	-10193.5	33213.4	6115.8	48968.4	-13820.6
111.53	36062.5	3477.0	43963.8	-9026.3	32879.8	6666.9	47423.3	-12492.9
111.63	35581.5	4175.8	42578.7	-7859.0	32546.2	7218.0	45878.1	-11165.2
111.73	35748.2	2180.6	45900.4	-9352.2	32418.3	5518.0	49519.9	-12979.2
111.83	35267.3	2879.3	44515.3	-8184.9	32084.7	6069.1	47974.8	-11651.6
111.93	34786.4	3578.0	43130.2	-7017.6	31751.1	6620.2	46429.6	-10323.9

TABLE XIII (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 111

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FINS

COND. NO.	S1 POUNDS	S2 POUNDS	CASE 1 AND 2		D3 POUNDS	D4 POUNDS
			S3 POUNDS	S4 POUNDS		
111.11	6309.0	6309.0	11458.8	11458.8	-6044.6	-6044.6
111.21	6309.0	6309.0	11458.8	11458.8	-6044.6	-6044.6
111.31	6309.0	6309.0	11458.8	11458.8	-6044.6	-6044.6
111.41	6043.7	6043.7	11724.1	11724.1	-6044.6	-6044.6
111.51	6043.7	6043.7	11724.1	11724.1	-6044.6	-6044.6
111.61	6043.7	6043.7	11724.1	11724.1	-6044.6	-6044.6
111.71	5778.3	5778.3	11989.5	11989.5	-6044.6	-6044.6
111.81	5778.3	5778.3	11989.5	11989.5	-6044.6	-6044.6
111.91	5778.3	5778.3	11989.5	11989.5	-6044.6	-6044.6
111.12	8057.9	8057.9	5922.8	5922.8	-6044.6	-6044.6
111.22	8057.9	8057.9	5922.8	5922.8	-6044.6	-6044.6
111.32	8057.9	8057.9	5922.8	5922.8	-6044.6	-6044.6
111.42	7792.5	7792.5	6188.1	6188.1	-6044.6	-6044.6
111.52	7792.5	7792.5	6188.1	6188.1	-6044.6	-6044.6
111.62	7792.5	7792.5	6188.1	6188.1	-6044.6	-6044.6
111.72	7527.2	7527.2	6453.5	6453.5	-6044.6	-6044.6
111.82	7527.2	7527.2	6453.5	6453.5	-6044.6	-6044.6
111.92	7527.2	7527.2	6453.5	6453.5	-6044.6	-6044.6
111.13	<u>9806.8</u>	<u>9806.8</u>	386.8	386.8	-6044.6	-6044.6
111.23	<u>9806.8</u>	<u>9806.8</u>	386.8	386.8	-6044.6	-6044.6
111.33	9806.8	9806.8	386.8	386.8	-6044.6	-6044.6
111.43	9541.4	9541.4	652.2	652.2	-6044.6	-6044.6
111.53	9541.4	9541.4	652.2	652.2	-6044.6	-6044.6
111.63	9541.4	9541.4	652.2	652.2	-6044.6	-6044.6
111.73	9276.1	9276.1	917.5	917.5	-6044.6	-6044.6
111.83	9276.1	9276.1	917.5	917.5	-6044.6	-6044.6
111.93	9276.1	9276.1	917.5	917.5	-6044.6	-6044.6

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TABLE XIII (CONTINUED)
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FINs) CONDITION 111

INERTIA AND AIRLOADS - ULTIMATE

INERTIA LOADS - PLUS FWD, LEFT AND DOWN
AIRLOAD FORCES - PLUS AFT, RIGHT AND UP
AIRLOAD MOMENTS - PLUS NOSE UP AND NOSE RIGHT

CONFIGURATION 1.0 WITH FINs

COND. NO.	PNX FWD. POUNDS	PNY LEFT POUNDS	PNZ DOWN POUNDS	PX AFT POUNDS	PY RIGHT POUNDS	PZ UP POUNDS	MY NOSE UP INCH-LBS.	MZ NOSE RIGHT INCH-LBS.
111.11	0.0	-27440.0	73500.0	12089.2	7440.3	778.0	-2.714220E 04	-9.889950E 05
111.21	0.0	-27440.0	73500.0	12089.2	7440.3	778.0	-2.714220E 04	-9.889950E 05
111.31	0.0	-27440.0	73500.0	12089.2	7440.3	778.0	-2.714220E 04	-9.889950E 05
111.41	0.0	-27440.0	73500.0	12089.2	7440.3	778.0	-2.714220E 04	-9.889950E 05
111.51	0.0	-27440.0	73500.0	12089.2	7440.3	778.0	-2.714220E 04	-9.889950E 05
111.61	0.0	-27440.0	73500.0	12089.2	7440.3	778.0	-2.714220E 04	-9.889950E 05
111.71	0.0	-27440.0	73500.0	12089.2	7440.3	778.0	-2.714220E 04	-9.889950E 05
111.81	0.0	-27440.0	73500.0	12089.2	7440.3	778.0	-2.714220E 04	-9.889950E 05
111.91	0.0	-27440.0	73500.0	12089.2	7440.3	778.0	-2.714220E 04	-9.889950E 05
111.12	0.0	-27440.0	73500.0	12089.2	-133.8	778.0	-2.714220E 04	4.973878E 04
111.22	0.0	-27440.0	73500.0	12089.2	-133.8	778.0	-2.714220E 04	4.973878E 04
111.32	0.0	-27440.0	73500.0	12089.2	-133.8	778.0	-2.714220E 04	4.973878E 04
111.42	0.0	-27440.0	73500.0	12089.2	-133.8	778.0	-2.714220E 04	4.973878E 04
111.52	0.0	-27440.0	73500.0	12089.2	-133.8	778.0	-2.714220E 04	4.973878E 04
111.62	0.0	-27440.0	73500.0	12089.2	-133.8	778.0	-2.714220E 04	4.973878E 04
111.72	0.0	-27440.0	73500.0	12089.2	-133.8	778.0	-2.714220E 04	4.973878E 04
111.82	0.0	-27440.0	73500.0	12089.2	-133.8	778.0	-2.714220E 04	4.973878E 04
111.92	0.0	-27440.0	73500.0	12089.2	-133.8	778.0	-2.714220E 04	4.973878E 04
111.13	0.0	-27440.0	73500.0	12089.2	-7708.0	778.0	-2.714220E 04	1.088472E 06
111.23	0.0	-27440.0	73500.0	12089.2	-7708.0	778.0	-2.714220E 04	1.088472E 06
111.33	0.0	-27440.0	73500.0	12089.2	-7708.0	778.0	-2.714220E 04	1.088472E 06
111.43	0.0	-27440.0	73500.0	12089.2	-7708.0	778.0	-2.714220E 04	1.088472E 06
111.53	0.0	-27440.0	73500.0	12089.2	-7708.0	778.0	-2.714220E 04	1.088472E 06
111.63	0.0	-27440.0	73500.0	12089.2	-7708.0	778.0	-2.714220E 04	1.088472E 06
111.73	0.0	-27440.0	73500.0	12089.2	-7708.0	778.0	-2.714220E 04	1.088472E 06
111.83	0.0	-27440.0	73500.0	12089.2	-7708.0	778.0	-2.714220E 04	1.088472E 06
111.93	0.0	-27440.0	73500.0	12089.2	-7708.0	778.0	-2.714220E 04	1.088472E 06

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TABLE XIII (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 111

PYLON HOOK LOADS - AERODYNAMIC CONSIDERATIONS
 CONFIGURATION 1.0 WITH FINS

COND. NO.	RHO SLUGS/FT**3	VELOCITY KEAS	XCP INCHES	YCP INCHES	ZCP INCHES	ALPHA DEGREES	BETA DEGREES
111.11	0.0023769	260.000	170.210	0.000	-26.000	-0.500	-7.180
111.21	0.0023769	260.000	170.210	0.000	-26.000	-0.500	-7.180
111.31	0.0023769	260.000	170.210	0.000	-26.000	-0.500	-7.180
111.41	0.0023769	260.000	170.210	0.000	-26.000	-0.500	-7.180
111.51	0.0023769	260.000	170.210	0.000	-26.000	-0.500	-7.180
111.61	0.0023769	260.000	170.210	0.000	-26.000	-0.500	-7.180
111.71	0.0023769	260.000	170.210	0.000	-26.000	-0.500	-7.180
111.81	0.0023769	260.000	170.210	0.000	-26.000	-0.500	-7.180
111.91	0.0023769	260.000	170.210	0.000	-26.000	-0.500	-7.180
111.12	0.0023769	260.000	170.210	0.000	-26.000	-0.500	0.000
111.22	0.0023769	260.000	170.210	0.000	-26.000	-0.500	0.000
111.32	0.0023769	260.000	170.210	0.000	-26.000	-0.500	0.000
111.42	0.0023769	260.000	170.210	0.000	-26.000	-0.500	0.000
111.52	0.0023769	260.000	170.210	0.000	-26.000	-0.500	0.000
111.62	0.0023769	260.000	170.210	0.000	-26.000	-0.500	0.000
111.72	0.0023769	260.000	170.210	0.000	-26.000	-0.500	0.000
111.82	0.0023769	260.000	170.210	0.000	-26.000	-0.500	0.000
111.92	0.0023769	260.000	170.210	0.000	-26.000	-0.500	0.000
111.13	0.0023769	260.000	170.210	0.000	-26.000	-0.500	7.180
111.23	0.0023769	260.000	170.210	0.000	-26.000	-0.500	7.180
111.33	0.0023769	260.000	170.210	0.000	-26.000	-0.500	7.180
111.43	0.0023769	260.000	170.210	0.000	-26.000	-0.500	7.180
111.53	0.0023769	260.000	170.210	0.000	-26.000	-0.500	7.180
111.63	0.0023769	260.000	170.210	0.000	-26.000	-0.500	7.180
111.73	0.0023769	260.000	170.210	0.000	-26.000	-0.500	7.180
111.83	0.0023769	260.000	170.210	0.000	-26.000	-0.500	7.180
111.93	0.0023769	260.000	170.210	0.000	-26.000	-0.500	7.180

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TABLE XIII (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 111

PYLON HOOK LOADS - INERTIA CONSIDERATIONS

CONFIGURATION 1.0 WITH FINS

COND. NO.	DTV WT. POUNDS	ULTIMATE NX	LOAD NY	FACTOR NZ	XCG INCHES	YCG INCHES	ZCG INCHES
111.11	49000.0	0.00	-0.56	1.50	167.560	-0.650	-27.350
111.21	49000.0	0.00	-0.56	1.50	167.560	0.000	-27.350
111.31	49000.0	0.00	-0.56	1.50	167.560	0.650	-27.350
111.41	49000.0	0.00	-0.56	1.50	170.210	-0.650	-27.350
111.51	49000.0	0.00	-0.56	1.50	170.210	0.000	-27.350
111.61	49000.0	0.00	-0.56	1.50	170.210	0.650	-27.350
111.71	49000.0	0.00	-0.56	1.50	172.860	-0.650	-27.350
111.81	49000.0	0.00	-0.56	1.50	172.860	0.000	-27.350
111.91	49000.0	0.00	-0.56	1.50	172.860	0.650	-27.350
111.12	49000.0	0.00	-0.56	1.50	167.560	-0.650	-27.350
111.22	49000.0	0.00	-0.56	1.50	167.560	0.000	-27.350
111.32	49000.0	0.00	-0.56	1.50	167.560	0.650	-27.350
111.42	49000.0	0.00	-0.56	1.50	170.210	-0.650	-27.350
111.52	49000.0	0.00	-0.56	1.50	170.210	0.000	-27.350
111.62	49000.0	0.00	-0.56	1.50	170.210	0.650	-27.350
111.72	49000.0	0.00	-0.56	1.50	172.860	-0.650	-27.350
111.82	49000.0	0.00	-0.56	1.50	172.860	0.000	-27.350
111.92	49000.0	0.00	-0.56	1.50	172.860	0.650	-27.350
111.13	49000.0	0.00	-0.56	1.50	167.560	-0.650	-27.350
111.23	49000.0	0.00	-0.56	1.50	167.560	0.000	-27.350
111.33	49000.0	0.00	-0.56	1.50	167.560	0.650	-27.350
111.43	49000.0	0.00	-0.56	1.50	170.210	-0.650	-27.350
111.53	49000.0	0.00	-0.56	1.50	170.210	0.000	-27.350
111.63	49000.0	0.00	-0.56	1.50	170.210	0.650	-27.350
111.73	49000.0	0.00	-0.56	1.50	172.860	-0.650	-27.350
111.83	49000.0	0.00	-0.56	1.50	172.860	0.000	-27.350
111.93	49000.0	0.00	-0.56	1.50	172.860	0.650	-27.350

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TABLE XIV
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FLAPS) CONDITION 112

PYLON HOOK LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON DTV)

CONFIGURATION 1.0 WITH FINS

COND. NO.	VA POUNDS	VBL POUNDS	VBR POUNDS	VCL POUNDS	VCR POUNDS	DCL POUNDS	DCR POUNDS	SA POUNDS	SCL POUNDS
112.11	-22267.6	-34247.7	-16499.1	0.0	0.0	4639.2	6294.3	-5576.4	-28945.6
112.21	-22267.6	-33344.1	-17402.7	0.0	0.0	4639.2	6294.3	-5576.4	-28945.6
112.31	-22267.6	-32440.5	-18306.3	0.0	0.0	4639.2	6294.3	-5576.4	-28945.6
112.41	-21344.5	-34607.4	-17062.5	0.0	0.0	4688.2	6245.3	-5246.3	-29275.7
112.51	-21344.5	-33703.8	-17966.1	0.0	0.0	4688.2	6245.3	-5246.3	-29275.7
112.61	-21344.5	-32800.3	-18869.7	0.0	0.0	4688.2	6245.3	-5246.3	-29275.7
112.71	-20421.4	-34967.1	-17625.9	0.0	0.0	4737.2	6196.3	-4916.3	-29605.8
112.81	-20421.4	-34063.6	-18529.5	0.0	0.0	4737.2	6196.3	-4916.3	-29605.8
112.91	-20421.4	-33160.0	-19433.0	0.0	0.0	4737.2	6196.3	-4916.3	-29605.8
112.12	-22267.6	-33859.9	-16886.9	0.0	0.0	4268.7	6664.7	-8072.9	-19246.0
112.22	-22267.6	-32956.4	-17790.4	0.0	0.0	4268.7	6664.7	-8072.9	-19246.0
112.32	-22267.6	-32052.8	-18694.0	0.0	0.0	4268.7	6664.7	-8072.9	-19246.0
112.42	-21344.5	-34219.7	-17450.3	0.0	0.0	4317.7	6615.8	-7742.9	-19576.1
112.52	-21344.5	-33316.1	-18353.8	0.0	0.0	4317.7	6615.8	-7742.9	-19576.1
112.62	-21344.5	-32412.5	-19257.4	0.0	0.0	4317.7	6615.8	-7742.9	-19576.1
112.72	-20421.4	-34579.4	-18013.7	0.0	0.0	4366.7	6566.8	-7412.8	-19906.2
112.82	-20421.4	-33675.8	-18917.2	0.0	0.0	4366.7	6566.8	-7412.8	-19906.2
112.92	-20421.4	-32772.2	-19820.8	0.0	0.0	4366.7	6566.8	-7412.8	-19906.2
112.13	-22267.6	-33472.2	-17274.6	0.0	0.0	3898.2	7035.2	-10569.5	-9546.4
112.23	-22267.6	-32568.6	-18178.2	0.0	0.0	3898.2	7035.2	-10569.5	-9546.4
112.33	-22267.6	-31665.1	-19081.8	0.0	0.0	3898.2	7035.2	-10569.5	-9546.4
112.43	-21344.5	-33831.9	-17838.0	0.0	0.0	3947.2	6986.2	-10239.4	-9876.5
112.53	-21344.5	-32928.4	-18741.6	0.0	0.0	3947.2	6986.2	-10239.4	-9876.5
112.63	-21344.5	-32024.8	-19645.1	0.0	0.0	3947.2	6986.2	-10239.4	-9876.5
112.73	-20421.4	-34191.6	-18401.4	0.0	0.0	3996.2	6937.3	-9909.3	-10206.6
112.83	-20421.4	-33288.1	-19304.9	0.0	0.0	3996.2	6937.3	-9909.3	-10206.6
112.93	-20421.4	-32384.5	-20208.5	0.0	0.0	3996.2	6937.3	-9909.3	-10206.6

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TABLE XIV (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FIN) CONDITION 112

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FIN

COND. NO.	CASE 1				CASE 2			
	V1 POUNDS	V2 POUNDS	V3 POUNDS	V4 POUNDS	V1 POUNDS	V2 POUNDS	V3 POUNDS	V4 POUNDS
112.11	43543.0	-6178.9	62045.4	-24639.9	37927.0	-550.2	68149.8	-30757.1
112.21	43062.1	-5480.2	60660.3	-23472.6	37593.3	0.9	66604.7	-29429.4
112.31	42581.1	-4781.5	59275.2	-22305.4	37259.7	552.0	65059.5	-28101.7
112.41	42747.9	-6776.7	62596.9	-23798.6	37131.9	-1148.0	68701.4	-29915.8
112.51	42267.0	-6078.0	61211.9	-22631.3	36798.2	-596.9	67156.3	-28588.1
112.61	41786.0	-5379.3	59826.8	-21464.1	36464.6	-45.8	65611.1	-27260.4
112.71	41952.7	-7374.5	63148.5	-22957.2	36336.8	-1745.8	69252.9	-29074.4
112.81	41471.8	-6675.8	61763.4	-21790.0	36003.1	-1194.7	67707.8	-27746.8
112.91	40990.9	-5977.0	60378.3	-20622.7	35669.5	-643.6	66162.6	-26419.1
112.12	40367.8	-1673.8	53852.5	-17777.0	35865.2	2839.0	58746.8	-22681.5
112.22	39886.9	-975.1	52467.5	-16609.8	35531.6	3390.1	57201.7	-21353.8
112.32	39406.0	-276.4	51082.4	-15442.5	35198.0	3941.2	55656.5	-20026.1
112.42	39572.7	-2271.6	54404.1	-16935.7	35070.1	2241.2	59298.4	-21840.2
112.52	39091.8	-1572.9	53019.1	-15768.5	34736.5	2792.3	57753.3	-20512.5
112.62	38610.9	-874.2	51634.0	-14601.2	34402.9	3343.4	56208.1	-19184.8
112.72	38777.6	-2869.4	54955.7	-16094.4	34275.0	1643.4	59849.9	-20998.9
112.82	38296.7	-2170.7	53570.6	-14927.2	33941.4	2194.5	58304.8	-19671.2
112.92	37815.8	-1471.9	52185.5	-13759.9	33607.7	2745.6	56759.6	-18343.5
112.13	37192.7	2831.3	45659.7	-10914.2	33803.4	6228.2	49343.8	-14605.9
112.23	36711.8	3530.0	44274.7	-9747.0	33469.8	6779.3	47798.7	-13278.3
112.33	36230.9	4228.7	42889.6	-8579.7	33136.2	7330.4	46253.5	-11950.6
112.43	36397.6	2233.5	46211.3	-10072.9	33008.3	5630.4	49895.3	-13764.6
112.53	35916.7	2932.6	44826.3	-8905.6	32674.7	6181.5	48350.2	-12436.9
112.63	35435.8	3630.9	43441.2	-7738.4	32341.1	6732.6	46805.0	-11109.2
112.73	35602.5	1635.7	46762.9	-9231.6	32213.2	5032.6	50446.9	-12923.3
112.83	35121.6	2334.4	45377.8	-8064.3	31879.6	5583.7	48901.8	-11595.6
112.93	34640.6	3033.2	43992.7	-6897.1	31546.0	6134.8	47356.6	-10267.9

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TABLE XIY (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 112

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FINS

COND. NO.	S1 POUNDS	S2 POUNDS	CASE 1 AND 2 S3 POUNDS	S4 POUNDS	D3 POUNDS	D4 POUNDS
112.11	6378.0	6378.0	11210.7	11210.7	-5466.7	-5466.7
112.21	6378.0	6378.0	11210.7	11210.7	-5466.7	-5466.7
112.31	6378.0	6378.0	11210.7	11210.7	-5466.7	-5466.7
112.41	6112.6	6112.6	11476.0	11476.0	-5466.7	-5466.7
112.51	6112.6	6112.6	11476.0	11476.0	-5466.7	-5466.7
112.61	6112.6	6112.6	11476.0	11476.0	-5466.7	-5466.7
112.71	5847.2	5847.2	11741.4	11741.4	-5466.7	-5466.7
112.81	5847.2	5847.2	11741.4	11741.4	-5466.7	-5466.7
112.91	5847.2	5847.2	11741.4	11741.4	-5466.7	-5466.7
112.12	8041.2	8041.2	5945.9	5945.9	-5466.7	-5466.7
112.22	8041.2	8041.2	5945.9	5945.9	-5466.7	-5466.7
112.32	8041.2	8041.2	5945.9	5945.9	-5466.7	-5466.7
112.42	7775.8	7775.8	6211.3	6211.3	-5466.7	-5466.7
112.52	7775.8	7775.8	6211.3	6211.3	-5466.7	-5466.7
112.62	7775.8	7775.8	6211.3	6211.3	-5466.7	-5466.7
112.72	7510.5	7510.5	6476.6	6476.6	-5466.7	-5466.7
112.82	7510.5	7510.5	6476.6	6476.6	-5466.7	-5466.7
112.92	7510.5	7510.5	6476.6	6476.6	-5466.7	-5466.7
112.13	9704.4	9704.4	681.1	681.1	-5466.7	-5466.7
112.23	9704.4	9704.4	681.1	681.1	-5466.7	-5466.7
112.33	9704.4	9704.4	681.1	681.1	-5466.7	-5466.7
112.43	9439.0	9439.0	946.5	946.5	-5466.7	-5466.7
112.53	9439.0	9439.0	946.5	946.5	-5466.7	-5466.7
112.63	9439.0	9439.0	946.5	946.5	-5466.7	-5466.7
112.73	9173.7	9173.7	1211.9	1211.9	-5466.7	-5466.7
112.83	9173.7	9173.7	1211.9	1211.9	-5466.7	-5466.7
112.93	9173.7	9173.7	1211.9	1211.9	-5466.7	-5466.7

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TABLE XIY (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 112

PYLON HOOK LOADS - AERODYNAMIC CONSIDERATIONS
 CONFIGURATION 1.0 WITH FINS

COND. NO.	RHO SLUGS/FT**3	VELOCITY KEAS	XCP INCHES	YCP INCHES	ZCP INCHES	ALPHA DEGREES	BETA DEGREES
112.11	0.0007699	247.260	170.210	0.000	-26.000	-0.900	-7.550
112.21	0.0007699	247.260	170.210	0.000	-26.000	-0.900	-7.550
112.31	0.0007699	247.260	170.210	0.000	-26.000	-0.900	-7.550
112.41	0.0007699	247.260	170.210	0.000	-26.000	-0.900	-7.550
112.51	0.0007699	247.260	170.210	0.000	-26.000	-0.900	-7.550
112.61	0.0007699	247.260	170.210	0.000	-26.000	-0.900	-7.550
112.71	0.0007699	247.260	170.210	0.000	-26.000	-0.900	-7.550
112.81	0.0007699	247.260	170.210	0.000	-26.000	-0.900	-7.550
112.91	0.0007699	247.260	170.210	0.000	-26.000	-0.900	-7.550
112.12	0.0007699	247.260	170.210	0.000	-26.000	-0.900	0.000
112.22	0.0007699	247.260	170.210	0.000	-26.000	-0.900	0.000
112.32	0.0007699	247.260	170.210	0.000	-26.000	-0.900	0.000
112.42	0.0007699	247.260	170.210	0.000	-26.000	-0.900	0.000
112.52	0.0007699	247.260	170.210	0.000	-26.000	-0.900	0.000
112.62	0.0007699	247.260	170.210	0.000	-26.000	-0.900	0.000
112.72	0.0007699	247.260	170.210	0.000	-26.000	-0.900	0.000
112.82	0.0007699	247.260	170.210	0.000	-26.000	-0.900	0.000
112.92	0.0007699	247.260	170.210	0.000	-26.000	-0.900	0.000
112.13	0.0007699	247.260	170.210	0.000	-26.000	-0.900	7.550
112.23	0.0007699	247.260	170.210	0.000	-26.000	-0.900	7.550
112.33	0.0007699	247.260	170.210	0.000	-26.000	-0.900	7.550
112.43	0.0007699	247.260	170.210	0.000	-26.000	-0.900	7.550
112.53	0.0007699	247.260	170.210	0.000	-26.000	-0.900	7.550
112.63	0.0007699	247.260	170.210	0.000	-26.000	-0.900	7.550
112.73	0.0007699	247.260	170.210	0.000	-26.000	-0.900	7.550
112.83	0.0007699	247.260	170.210	0.000	-26.000	-0.900	7.550
112.93	0.0007699	247.260	170.210	0.000	-26.000	-0.900	7.550

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CEDING PAGE BLANK NOT FILLED

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TABLE XIV (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 112

PYLON HOOK LOADS - INERTIA CONSIDERATIONS

CONFIGURATION 1.0 WITH FINS

COND. NO.	DTV WT. POUNDS	ULTIMATE NX	LOAD NY	FACTOR NZ	XCG INCHES	YCG INCHES	ZCG INCHES
112.11	49000.0	0.00	-0.56	1.50	167.560	-0.650	-27.350
112.21	49000.0	0.00	-0.56	1.50	167.560	0.000	-27.350
112.31	49000.0	0.00	-0.56	1.50	167.560	0.650	-27.350
112.41	49000.0	0.00	-0.56	1.50	170.210	-0.650	-27.350
112.51	49000.0	0.00	-0.56	1.50	170.210	0.000	-27.350
112.61	49000.0	0.00	-0.56	1.50	170.210	0.650	-27.350
112.71	49000.0	0.00	-0.56	1.50	172.860	-0.650	-27.350
112.81	49000.0	0.00	-0.56	1.50	172.860	0.000	-27.350
112.91	49000.0	0.00	-0.56	1.50	172.860	0.650	-27.350
112.12	49000.0	0.00	-0.56	1.50	167.560	-0.650	-27.350
112.22	49000.0	0.00	-0.56	1.50	167.560	0.000	-27.350
112.32	49000.0	0.00	-0.56	1.50	167.560	0.650	-27.350
112.42	49000.0	0.00	-0.56	1.50	170.210	-0.650	-27.350
112.52	49000.0	0.00	-0.56	1.50	170.210	0.000	-27.350
112.62	49000.0	0.00	-0.56	1.50	170.210	0.650	-27.350
112.72	49000.0	0.00	-0.56	1.50	172.860	-0.650	-27.350
112.82	49000.0	0.00	-0.56	1.50	172.860	0.000	-27.350
112.92	49000.0	0.00	-0.56	1.50	172.860	0.650	-27.350
112.13	49000.0	0.00	-0.56	1.50	167.560	-0.650	-27.350
112.23	49000.0	0.00	-0.56	1.50	167.560	0.000	-27.350
112.33	49000.0	0.00	-0.56	1.50	167.560	0.650	-27.350
112.43	49000.0	0.00	-0.56	1.50	170.210	-0.650	-27.350
112.53	49000.0	0.00	-0.56	1.50	170.210	0.000	-27.350
112.63	49000.0	0.00	-0.56	1.50	170.210	0.650	-27.350
112.73	49000.0	0.00	-0.56	1.50	172.860	-0.650	-27.350
112.83	49000.0	0.00	-0.56	1.50	172.860	0.000	-27.350
112.93	49000.0	0.00	-0.56	1.50	172.860	0.650	-27.350

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TABLE XV
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FLAPS) CONDITION 113

PYLON HOOK LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON DTV)

CONFIGURATION 1.0 WITH FINIS

COND. NO.	VA POUNDS	VBL POUNDS	VBR POUNDS	VCL POUNDS	VCR POUNDS	DCL POUNDS	DCR POUNDS	SA POUNDS	SCL POUNDS
113.11	28459.7	0.0	0.0	22353.1	21339.5	-34438.3	-34815.8	1271.9	-5711.6
113.21	28459.7	0.0	0.0	21631.4	22061.1	-34406.1	-34848.0	1488.7	-5928.4
113.31	28459.7	0.0	0.0	20909.8	22782.8	-34373.9	-34880.1	1705.6	-6145.3
113.41	27518.1	0.0	0.0	22823.9	21810.2	-34438.3	-34815.8	1271.9	-5711.6
113.51	27518.1	0.0	0.0	22102.2	22531.9	-34406.1	-34848.0	1488.7	-5928.4
113.61	27518.1	0.0	0.0	21380.6	23253.6	-34373.9	-34880.1	1705.6	-6145.3
113.71	26576.5	0.0	0.0	23294.6	22281.0	-34438.3	-34815.8	1271.9	-5711.6
113.81	26576.5	0.0	0.0	22573.0	23002.7	-34406.1	-34848.0	1488.7	-5928.4
113.91	26576.5	0.0	0.0	21851.3	23724.3	-34373.9	-34880.1	1705.6	-6145.3
113.12	28459.7	0.0	0.0	22557.0	21135.5	-34669.1	-34585.0	-283.2	330.2
113.22	28459.7	0.0	0.0	21835.4	21857.2	-34636.9	-34617.2	-66.3	113.3
113.32	28459.7	0.0	0.0	21113.7	22578.9	-34604.7	-34649.4	150.5	-103.5
113.42	27518.1	0.0	0.0	23027.8	21606.3	-34669.1	-34585.0	-283.2	330.2
113.52	27518.1	0.0	0.0	22306.1	22328.0	-34636.9	-34617.2	-66.3	113.3
113.62	27518.1	0.0	0.0	21584.5	23049.6	-34604.7	-34649.4	150.5	-103.5
113.72	26576.5	0.0	0.0	23498.6	22077.1	-34669.1	-34585.0	-283.2	330.2
113.82	26576.5	0.0	0.0	22776.9	22798.7	-34636.9	-34617.2	-66.3	113.3
113.92	26576.5	0.0	0.0	22055.3	23520.4	-34604.7	-34649.4	150.5	-103.5
113.13	28459.7	0.0	0.0	22760.9	20931.6	-34899.8	-34354.2	-1838.2	6372.0
113.23	28459.7	0.0	0.0	22039.3	21653.3	-34867.6	-34386.4	-1621.4	6155.1
113.33	28459.7	0.0	0.0	21317.6	22374.9	-34835.5	-34418.6	-1404.5	5938.2
113.43	27518.1	0.0	0.0	23231.7	21402.4	-34899.8	-34354.2	-1838.2	6372.0
113.53	27518.1	0.0	0.0	22510.1	22124.0	-34867.6	-34386.4	-1621.4	6155.1
113.63	27518.1	0.0	0.0	21788.4	22845.7	-34835.5	-34418.6	-1404.5	5938.2
113.73	26576.5	0.0	0.0	23702.5	21873.2	-34899.8	-34354.2	-1838.2	6372.0
113.83	26576.5	0.0	0.0	22980.8	22594.8	-34867.6	-34386.4	-1621.4	6155.1
113.93	26576.5	0.0	0.0	22259.2	23316.5	-34835.5	-34418.6	-1404.5	5938.2

TABLE XV (CONTINUED)
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FINS) CONDITION 113

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FINS

COND. NO.	CASE 1				CASE 2			
	V1 POUNDS	V2 POUNDS	V3 POUNDS	V4 POUNDS	V1 POUNDS	V2 POUNDS	V3 POUNDS	V4 POUNDS
113.11	-33766.1	-37326.9	2023.2	-4872.4	-34302.1	-36789.7	2605.8	-5456.2
113.21	-33332.4	-37966.8	3357.9	-6001.0	-34018.7	-37279.0	4103.9	-6748.5
113.31	-32898.7	-38606.6	4692.7	-7129.6	-33735.2	-37768.3	5601.9	-8040.7
113.41	-33043.3	-36604.1	1339.4	-5634.2	-33579.3	-36066.9	1922.1	-6218.1
113.51	-32609.6	-37244.0	2674.2	-6762.8	-33295.9	-36556.2	3420.1	-7510.3
113.61	-32175.9	-37883.8	4008.9	-7891.4	-33012.4	-37045.5	4918.2	-8802.6
113.71	-32320.5	-35881.3	655.7	-6396.1	-32856.5	-35344.1	1238.4	-6980.0
113.81	-31886.8	-36521.2	1990.5	-7524.7	-32573.1	-35833.4	2736.4	-8272.2
113.91	-31453.1	-37161.1	3325.2	-8653.3	-32289.6	-36322.7	4234.5	-9564.4
113.12	-35743.9	-34520.7	-3080.0	-597.6	-35586.4	-34678.6	-3251.2	-426.1
113.22	-35310.2	-35160.6	-1745.3	-1726.2	-35302.9	-35167.9	-1753.2	-1718.3
113.32	-34876.5	-35800.5	-410.5	-2854.8	-35019.4	-35657.2	-255.1	-3010.5
113.42	-35021.1	-33797.9	-3763.8	-1359.5	-34863.6	-33955.8	-3934.9	-1187.9
113.52	-34587.4	-34437.8	-2429.0	-2488.0	-34580.1	-34445.1	-2436.9	-2480.1
113.62	-34153.7	-35077.7	-1094.3	-3616.7	-34296.6	-34934.4	-938.8	-3772.4
113.72	-34298.3	-33075.1	-4447.5	-2121.3	-34140.8	-33233.0	-4618.7	-1949.8
113.82	-33864.6	-33715.0	-3112.7	-3249.9	-33857.3	-33722.3	-3120.6	-3242.0
113.92	-33430.9	-34354.9	-1778.0	-4378.5	-33573.9	-34211.6	-1622.6	-4534.2
113.13	-37721.6	-31714.6	-8183.2	3677.2	-36870.6	-32567.5	-9108.2	4604.1
113.23	-37287.9	-32354.4	-6848.5	2548.6	-36587.2	-33056.8	-7610.2	3311.9
113.33	-36854.2	-32994.3	-5513.7	1420.0	-36303.7	-33546.1	-6112.2	2019.7
113.43	-36998.8	-30991.8	-8866.9	2915.3	-36147.8	-31844.7	-9792.0	3842.3
113.53	-36565.1	-31631.6	-7532.2	1786.2	-35864.4	-32334.0	-8294.0	2550.1
113.63	-36131.4	-32271.5	-6197.5	658.7	-35580.9	-32823.3	-6795.9	1257.8
113.73	-36276.1	-30269.0	-9550.7	2153.4	-35425.0	-31121.9	-10475.7	3080.4
113.83	-35842.4	-30908.8	-8215.9	1024.9	-35141.6	-31611.2	-8977.7	1788.2
113.93	-35408.7	-31548.7	-6881.2	-103.7	-34858.1	-32100.5	-7479.6	496.0

TABLE XV (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 113

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FINS

COND. NO.	S1 POUNDS	S2 POUNDS	CASE 1 AND 2 S3 POUNDS	S4 POUNDS	D3 POUNDS	D4 POUNDS
113.11	-984.6	-984.6	3204.4	3204.4	35504.5	35504.5
113.21	-1158.9	-1158.9	3378.8	3378.8	35504.5	35504.5
113.31	-1333.3	-1333.3	3553.1	3553.1	35504.5	35504.5
113.41	-984.6	-984.6	3204.4	3204.4	35504.5	35504.5
113.51	-1158.9	-1158.9	3378.8	3378.8	35504.5	35504.5
113.61	-1333.3	-1333.3	3553.1	3553.1	35504.5	35504.5
113.71	-984.6	-984.6	3204.4	3204.4	35504.5	35504.5
113.81	-1158.9	-1158.9	3378.8	3378.8	35504.5	35504.5
113.91	-1333.3	-1333.3	3553.1	3553.1	35504.5	35504.5
113.12	51.4	51.4	-74.9	-74.9	35504.5	35504.5
113.22	-122.9	-122.9	99.4	99.4	35504.5	35504.5
113.32	-297.3	-297.3	273.8	273.8	35504.5	35504.5
113.42	51.4	51.4	-74.9	-74.9	35504.5	35504.5
113.52	-122.9	-122.9	99.4	99.4	35504.5	35504.5
113.62	-297.3	-297.3	273.8	273.8	35504.5	35504.5
113.72	51.4	51.4	-74.9	-74.9	35504.5	35504.5
113.82	-122.9	-122.9	99.4	99.4	35504.5	35504.5
113.92	-297.3	-297.3	273.8	273.8	35504.5	35504.5
113.13	1087.4	1087.4	-3354.3	-3354.3	35504.5	35504.5
113.23	913.1	913.1	-3179.9	-3179.9	35504.5	35504.5
113.33	738.7	738.7	-3005.6	-3005.6	35504.5	35504.5
113.43	1087.4	1087.4	-3354.3	-3354.3	35504.5	35504.5
113.53	913.1	913.1	-3179.9	-3179.9	35504.5	35504.5
113.63	738.7	738.7	-3005.6	-3005.6	35504.5	35504.5
113.73	1087.4	1087.4	-3354.3	-3354.3	35504.5	35504.5
113.83	913.1	913.1	-3179.9	-3179.9	35504.5	35504.5
113.93	738.7	738.7	-3005.6	-3005.6	35504.5	35504.5

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TABLE XV (CONTINUED)
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FINS) CONDITION 113

INERTIA AND AIRLOADS - ULTIMATE

INERTIA LOADS - PLUS FWD, LEFT AND DOWN

AIRLOAD FORCES - PLUS AFT, RIGHT AND UP

AIRLOAD MOMENTS - PLUS NOSE UP AND NOSE RIGHT

CONFIGURATION 1.0 WITH FINS

COND. NO.	PNX FWD. POUNDS	PNY LEFT POUNDS	PNZ DOWN POUNDS	PX AFT POUNDS	PY RIGHT POUNDS	PZ UP POUNDS	MY NOSE UP INCH-LBS.	MZ NOSE RIGHT INCH-LBS.
113.11	73500.0	0.0	-74969.9	4245.9	4439.7	-2817.7	7.323012E 05	-5.978466E 05
113.21	73500.0	0.0	-74969.9	4245.9	4439.7	-2817.7	7.323012E 05	-5.978466E 05
113.31	73500.0	0.0	-74969.9	4245.9	4439.7	-2817.7	7.323012E 05	-5.978466E 05
113.41	73500.0	0.0	-74969.9	4245.9	4439.7	-2817.7	7.323012E 05	-5.978466E 05
113.51	73500.0	0.0	-74969.9	4245.9	4439.7	-2817.7	7.323012E 05	-5.978466E 05
113.61	73500.0	0.0	-74969.9	4245.9	4439.7	-2817.7	7.323012E 05	-5.978466E 05
113.71	73500.0	0.0	-74969.9	4245.9	4439.7	-2817.7	7.323012E 05	-5.978466E 05
113.81	73500.0	0.0	-74969.9	4245.9	4439.7	-2817.7	7.323012E 05	-5.978466E 05
113.91	73500.0	0.0	-74969.9	4245.9	4439.7	-2817.7	7.323012E 05	-5.978466E 05
113.12	73500.0	0.0	-74969.9	4245.9	-47.0	-2817.7	7.323012E 05	1.746905E 04
113.22	73500.0	0.0	-74969.9	4245.9	-47.0	-2817.7	7.323012E 05	1.746905E 04
113.32	73500.0	0.0	-74969.9	4245.9	-47.0	-2817.7	7.323012E 05	1.746905E 04
113.42	73500.0	0.0	-74969.9	4245.9	-47.0	-2817.7	7.323012E 05	1.746905E 04
113.52	73500.0	0.0	-74969.9	4245.9	-47.0	-2817.7	7.323012E 05	1.746905E 04
113.62	73500.0	0.0	-74969.9	4245.9	-47.0	-2817.7	7.323012E 05	1.746905E 04
113.72	73500.0	0.0	-74969.9	4245.9	-47.0	-2817.7	7.323012E 05	1.746905E 04
113.82	73500.0	0.0	-74969.9	4245.9	-47.0	-2817.7	7.323012E 05	1.746905E 04
113.92	73500.0	0.0	-74969.9	4245.9	-47.0	-2817.7	7.323012E 05	1.746905E 04
113.13	73500.0	0.0	-74969.9	4245.9	-4533.7	-2817.7	7.323012E 05	6.327848E 05
113.23	73500.0	0.0	-74969.9	4245.9	-4533.7	-2817.7	7.323012E 05	6.327848E 05
113.33	73500.0	0.0	-74969.9	4245.9	-4533.7	-2817.7	7.323012E 05	6.327848E 05
113.43	73500.0	0.0	-74969.9	4245.9	-4533.7	-2817.7	7.323012E 05	6.327848E 05
113.53	73500.0	0.0	-74969.9	4245.9	-4533.7	-2817.7	7.323012E 05	6.327848E 05
113.63	73500.0	0.0	-74969.9	4245.9	-4533.7	-2817.7	7.323012E 05	6.327848E 05
113.73	73500.0	0.0	-74969.9	4245.9	-4533.7	-2817.7	7.323012E 05	6.327848E 05
113.83	73500.0	0.0	-74969.9	4245.9	-4533.7	-2817.7	7.323012E 05	6.327848E 05
113.93	73500.0	0.0	-74969.9	4245.9	-4533.7	-2817.7	7.323012E 05	6.327848E 05

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TABLE XV (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 113

PYLON HOOK LOADS - AERODYNAMIC CONSIDERATIONS

CONFIGURATION 1.0 WITH FINS

COND. NO.	RHO SLUGS/FT**3	VELOCITY KEAS	XCP INCHES	YCP INCHES	ZCP INCHES	ALPHA DEGREES	BETA DEGREES
113.11	0.0023769	154.085	170.210	0.000	-26.000	-15.100	-12.110
113.21	0.0023769	154.085	170.210	0.000	-26.000	-15.100	-12.110
113.31	0.0023769	154.085	170.210	0.000	-26.000	-15.100	-12.110
113.41	0.0023769	154.085	170.210	0.000	-26.000	-15.100	-12.110
113.51	0.0023769	154.085	170.210	0.000	-26.000	-15.100	-12.110
113.61	0.0023769	154.085	170.210	0.000	-26.000	-15.100	-12.110
113.71	0.0023769	154.085	170.210	0.000	-26.000	-15.100	-12.110
113.81	0.0023769	154.085	170.210	0.000	-26.000	-15.100	-12.110
113.91	0.0023769	154.085	170.210	0.000	-26.000	-15.100	-12.110
113.12	0.0023769	154.085	170.210	0.000	-26.000	-15.100	0.000
113.22	0.0023769	154.085	170.210	0.000	-26.000	-15.100	0.000
113.32	0.0023769	154.085	170.210	0.000	-26.000	-15.100	0.000
113.42	0.0023769	154.085	170.210	0.000	-26.000	-15.100	0.000
113.52	0.0023769	154.085	170.210	0.000	-26.000	-15.100	0.000
113.62	0.0023769	154.085	170.210	0.000	-26.000	-15.100	0.000
113.72	0.0023769	154.085	170.210	0.000	-26.000	-15.100	0.000
113.82	0.0023769	154.085	170.210	0.000	-26.000	-15.100	0.000
113.92	0.0023769	154.085	170.210	0.000	-26.000	-15.100	0.000
113.13	0.0023769	154.085	170.210	0.000	-26.000	-15.100	12.110
113.23	0.0023769	154.085	170.210	0.000	-26.000	-15.100	12.110
113.33	0.0023769	154.085	170.210	0.000	-26.000	-15.100	12.110
113.43	0.0023769	154.085	170.210	0.000	-26.000	-15.100	12.110
113.53	0.0023769	154.085	170.210	0.000	-26.000	-15.100	12.110
113.63	0.0023769	154.085	170.210	0.000	-26.000	-15.100	12.110
113.73	0.0023769	154.085	170.210	0.000	-26.000	-15.100	12.110
113.83	0.0023769	154.085	170.210	0.000	-26.000	-15.100	12.110
113.93	0.0023769	154.085	170.210	0.000	-26.000	-15.100	12.110

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TABLE XV (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 113

PYLON HOOK LOADS - INERTIA CONSIDERATIONS

CONFIGURATION 1.0 WITH FINS

COND. NO.	DTV WT. POUNDS	ULTIMATE NX	LOAD NY	FACTOR NZ	XCG INCHES	YCG INCHES	ZCG INCHES
113.11	49000.0	1.50	0.00	-1.53	167.560	-0.650	-27.350
113.21	49000.0	1.50	0.00	-1.53	167.560	0.000	-27.350
113.31	49000.0	1.50	0.00	-1.53	167.560	0.650	-27.350
113.41	49000.0	1.50	0.00	-1.53	170.210	-0.650	-27.350
113.51	49000.0	1.50	0.00	-1.53	170.210	0.000	-27.350
113.61	49000.0	1.50	0.00	-1.53	170.210	0.650	-27.350
113.71	49000.0	1.50	0.00	-1.53	172.860	-0.650	-27.350
113.81	49000.0	1.50	0.00	-1.53	172.860	0.000	-27.350
113.91	49000.0	1.50	0.00	-1.53	172.860	0.650	-27.350
113.12	49000.0	1.50	0.00	-1.53	167.560	-0.650	-27.350
113.22	49000.0	1.50	0.00	-1.53	167.560	0.000	-27.350
113.32	49000.0	1.50	0.00	-1.53	167.560	0.650	-27.350
113.42	49000.0	1.50	0.00	-1.53	170.210	-0.650	-27.350
113.52	49000.0	1.50	0.00	-1.53	170.210	0.000	-27.350
113.62	49000.0	1.50	0.00	-1.53	170.210	0.650	-27.350
113.72	49000.0	1.50	0.00	-1.53	172.860	-0.650	-27.350
113.82	49000.0	1.50	0.00	-1.53	172.860	0.000	-27.350
113.92	49000.0	1.50	0.00	-1.53	172.860	0.650	-27.350
113.13	49000.0	1.50	0.00	-1.53	167.560	-0.650	-27.350
113.23	49000.0	1.50	0.00	-1.53	167.560	0.000	-27.350
113.33	49000.0	1.50	0.00	-1.53	167.560	0.650	-27.350
113.43	49000.0	1.50	0.00	-1.53	170.210	-0.650	-27.350
113.53	49000.0	1.50	0.00	-1.53	170.210	0.000	-27.350
113.63	49000.0	1.50	0.00	-1.53	170.210	0.650	-27.350
113.73	49000.0	1.50	0.00	-1.53	172.860	-0.650	-27.350
113.83	49000.0	1.50	0.00	-1.53	172.860	0.000	-27.350
113.93	49000.0	1.50	0.00	-1.53	172.860	0.650	-27.350

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TABLE XVI
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FLAPS) CONDITION 114

PYLON HOOK LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON DTV)

CONFIGURATION 1.0 WITH FINS

COND. NO.	VA POUNDS	VBL POUNDS	VBR POUNDS	VCL POUNDS	VCR POUNDS	DCL POUNDS	DCR POUNDS	SA POUNDS	SCL POUNDS
114.11	29778.6	0.0	0.0	20859.6	20166.9	-30376.1	-31034.8	2219.4	-9659.8
114.21	29778.6	0.0	0.0	20137.9	20888.5	-30343.9	-31067.0	2436.3	-9876.6
114.31	29778.6	0.0	0.0	19416.3	21610.2	-30311.7	-31099.1	2653.2	-10093.5
114.41	28837.0	0.0	0.0	21330.4	20637.6	-30376.1	-31034.8	2219.4	-9659.8
114.51	28837.0	0.0	0.0	20608.7	21359.3	-30343.9	-31067.0	2436.3	-9876.6
114.61	28837.0	0.0	0.0	19887.1	22081.0	-30311.7	-31099.1	2653.2	-10093.5
114.71	27895.4	0.0	0.0	21801.1	21108.4	-30376.1	-31034.8	2219.4	-9659.8
114.81	27895.4	0.0	0.0	21079.5	21830.1	-30343.9	-31067.0	2436.3	-9876.6
114.91	27895.4	0.0	0.0	20357.8	22551.7	-30311.7	-31099.1	2653.2	-10093.5
114.12	29778.6	0.0	0.0	21203.8	19822.6	-30765.6	-30645.2	-405.7	539.6
114.22	29778.6	0.0	0.0	20482.2	20544.3	-30733.4	-30677.4	-188.8	322.7
114.32	29778.6	0.0	0.0	19760.5	21265.9	-30701.3	-30709.6	28.0	105.8
114.42	28837.0	0.0	0.0	21674.6	20293.4	-30765.6	-30645.2	-405.7	539.6
114.52	28837.0	0.0	0.0	20953.0	21015.1	-30733.4	-30677.4	-188.8	322.7
114.62	28837.0	0.0	0.0	20231.3	21736.7	-30701.3	-30709.6	28.0	105.8
114.72	27895.4	0.0	0.0	22145.4	20764.2	-30765.6	-30645.2	-405.7	539.6
114.82	27895.4	0.0	0.0	21423.7	21485.8	-30733.4	-30677.4	-188.8	322.7
114.92	27895.4	0.0	0.0	20702.1	22207.5	-30701.3	-30709.6	28.0	105.8
114.13	29778.6	0.0	0.0	21548.1	19478.4	-31155.2	-30255.6	-3030.8	10738.9
114.23	29778.6	0.0	0.0	20826.4	20200.0	-31123.0	-30287.8	-2814.0	10522.0
114.33	29778.6	0.0	0.0	20104.8	20921.7	-31090.8	-30320.0	-2597.1	10305.1
114.43	28837.0	0.0	0.0	22018.9	19949.1	-31155.2	-30255.6	-3030.8	10738.9
114.53	28837.0	0.0	0.0	21297.2	20670.8	-31123.0	-30287.8	-2814.0	10522.0
114.63	28837.0	0.0	0.0	20575.5	21392.5	-31090.8	-30320.0	-2597.1	10305.1
114.73	27895.4	0.0	0.0	22489.6	20419.9	-31155.2	-30255.6	-3030.8	10738.9
114.83	27895.4	0.0	0.0	21768.0	21141.6	-31123.0	-30287.8	-2814.0	10522.0
114.93	27895.4	0.0	0.0	21046.3	21863.2	-31090.8	-30320.0	-2597.1	10305.1

TABLE XVI (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 114

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FINS

COND. NO.	CASE 1				CASE 2			
	V1 POUNDS	V2 POUNDS	V3 POUNDS.	V4 POUNDS	V1 POUNDS	V2 POUNDS	V3 POUNDS	V4 POUNDS
114.11	-32314.4	-39144.1	6021.9	-7158.4	-33314.2	-38142.0	7108.7	-8247.5
114.21	-31880.7	-39784.0	7356.6	-8287.0	-33030.7	-38631.3	8606.7	-9539.7
114.31	-31447.0	-40423.9	8691.4	-9415.6	-32747.3	-39120.6	10104.8	-10831.9
114.41	-31591.6	-38421.3	5338.1	-7920.3	-32591.4	-37419.2	6424.9	-9009.3
114.51	-31157.9	-39061.2	6672.9	-9048.9	-32307.9	-37908.5	7923.0	-10301.6
114.61	-30724.2	-39701.1	8007.6	-10177.5	-32024.5	-38397.8	9421.0	-11593.8
114.71	-30868.8	-37698.5	4654.4	-8682.1	-31868.6	-36696.4	5741.2	-9771.2
114.81	-30435.1	-38338.4	5989.2	-9810.7	-31585.2	-37185.7	7239.3	-11063.4
114.91	-30001.4	-38978.3	7323.9	-10939.3	-31301.7	-37675.0	8737.3	-12355.6
114.12	-35653.1	-34406.9	-2593.0	58.0	-35482.2	-34578.2	-2778.8	244.1
114.22	-35219.4	-35046.8	-1258.2	-1070.6	-35198.7	-35067.5	-1280.7	-1048.1
114.32	-34785.7	-35686.7	76.5	-2199.2	-34915.3	-35556.8	217.3	-2340.3
114.42	-34930.3	-33684.1	-3276.7	-703.9	-34759.4	-33855.4	-3462.5	-517.7
114.52	-34496.6	-34324.0	-1942.0	-1832.5	-34475.9	-34344.7	-1964.5	-1809.9
114.62	-34062.9	-34963.9	-607.2	-2961.1	-34192.5	-34834.0	-466.4	-3102.2
114.72	-34207.5	-32961.4	-3960.4	-1465.8	-34036.6	-33132.7	-4146.2	-1279.6
114.82	-33773.8	-33601.2	-2625.7	-2594.3	-33753.1	-33621.9	-2648.2	-2571.8
114.92	-33340.1	-34241.1	-1290.9	-3722.9	-33469.7	-34111.2	-1150.1	-3864.0
114.13	-38991.8	-29669.7	-11207.9	7274.4	-37650.2	-31014.4	-12666.2	8735.8
114.23	-38558.1	-30309.6	-9873.2	6145.8	-37366.7	-31503.7	-11168.2	7443.6
114.33	-38124.4	-30949.5	-8538.4	5017.2	-37083.2	-31993.0	-9670.1	6151.3
114.43	-38269.0	-28946.9	-11891.6	6512.5	-36927.4	-30291.6	-13350.0	7973.9
114.53	-37835.3	-29586.8	-10556.9	5384.0	-36643.9	-30780.9	-11852.0	6681.7
114.63	-37401.6	-30226.7	-9222.1	4255.3	-36360.4	-31270.2	-10353.9	5389.5
114.73	-37546.3	-28224.1	-12575.3	5750.7	-36204.6	-29568.8	-14033.7	7212.1
114.83	-37112.6	-28864.0	-11240.6	4622.1	-35921.1	-30058.1	-12535.7	5919.9
114.93	-36678.9	-29503.9	-9905.8	3493.5	-35637.7	-30547.4	-11037.6	4627.6

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TABLE XVI (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 114

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FINS

COND. NO.	S1 POUNDS	S2 POUNDS	CASE 1 AND 2 S3 POUNDS	S4 POUNDS	D3 POUNDS	D4 POUNDS
114.11	-1583.9	-1583.9	5304.1	5304.1	31582.9	31582.9
114.21	-1758.3	-1758.3	5478.4	5478.4	31582.9	31582.9
114.31	-1932.6	-1932.6	5652.8	5652.8	31582.9	31582.9
114.41	-1583.9	-1583.9	5304.1	5304.1	31582.9	31582.9
114.51	-1758.3	-1758.3	5478.4	5478.4	31582.9	31582.9
114.61	-1932.6	-1932.6	5652.8	5652.8	31582.9	31582.9
114.71	-1583.9	-1583.9	5304.1	5304.1	31582.9	31582.9
114.81	-1758.3	-1758.3	5478.4	5478.4	31582.9	31582.9
114.91	-1932.6	-1932.6	5652.8	5652.8	31582.9	31582.9
114.12	165.0	165.0	-231.9	-231.9	31582.9	31582.9
114.22	-9.4	-9.4	-57.6	-57.6	31582.9	31582.9
114.32	-183.7	-183.7	116.8	116.8	31582.9	31582.9
114.42	165.0	165.0	-231.9	-231.9	31582.9	31582.9
114.52	-9.4	-9.4	-57.6	-57.6	31582.9	31582.9
114.62	-183.7	-183.7	116.8	116.8	31582.9	31582.9
114.72	165.0	165.0	-231.9	-231.9	31582.9	31582.9
114.82	-9.4	-9.4	-57.6	-57.6	31582.9	31582.9
114.92	-183.7	-183.7	116.8	116.8	31582.9	31582.9
114.13	1913.9	1913.9	-5767.9	-5767.9	31582.9	31582.9
114.23	1739.5	1739.5	-5593.5	-5593.5	31582.9	31582.9
114.33	1565.2	1565.2	-5419.2	-5419.2	31582.9	31582.9
114.43	1913.9	1913.9	-5767.9	-5767.9	31582.9	31582.9
114.53	1739.5	1739.5	-5593.5	-5593.5	31582.9	31582.9
114.63	1565.2	1565.2	-5419.2	-5419.2	31582.9	31582.9
114.73	1913.9	1913.9	-5767.9	-5767.9	31582.9	31582.9
114.83	1739.5	1739.5	-5593.5	-5593.5	31582.9	31582.9
114.93	1565.2	1565.2	-5419.2	-5419.2	31582.9	31582.9

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TABLE XVI (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 114

INERTIA AND AIRLOADS - ULTIMATE

INERTIA LOADS - PLUS FWD, LEFT AND DOWN
 AIRLOAD FORCES - PLUS AFT, RIGHT AND UP
 AIRLOAD MOMENTS - PLUS NOSE UP AND NOSE RIGHT

CONFIGURATION 1.0 WITH FINS

COND. NO.	PNX FWD. POUNDS	PNY LEFT POUNDS	PNZ DOWN POUNDS	PX AFT POUNDS	PY RIGHT POUNDS	PZ UP POUNDS	MY NOSE UP INCH-LBS.	MZ NOSE RIGHT INCH-LBS.
114.11	73500.0	0.0	-74969.9	12089.2	7440.3	-4164.9	1.159155E 06	-9.889950E 05
114.21	73500.0	0.0	-74969.9	12089.2	7440.3	-4164.9	1.159155E 06	-9.889950E 05
114.31	73500.0	0.0	-74969.9	12089.2	7440.3	-4164.9	1.159155E 06	-9.889950E 05
114.41	73500.0	0.0	-74969.9	12089.2	7440.3	-4164.9	1.159155E 06	-9.889950E 05
114.51	73500.0	0.0	-74969.9	12089.2	7440.3	-4164.9	1.159155E 06	-9.889950E 05
114.61	73500.0	0.0	-74969.9	12089.2	7440.3	-4164.9	1.159155E 06	-9.889950E 05
114.71	73500.0	0.0	-74969.9	12089.2	7440.3	-4164.9	1.159155E 06	-9.889950E 05
114.81	73500.0	0.0	-74969.9	12089.2	7440.3	-4164.9	1.159155E 06	-9.889950E 05
114.91	73500.0	0.0	-74969.9	12089.2	7440.3	-4164.9	1.159155E 06	-9.889950E 05
114.12	73500.0	0.0	-74969.9	12089.2	-133.8	-4164.9	1.159155E 06	4.973878E 04
114.22	73500.0	0.0	-74969.9	12089.2	-133.8	-4164.9	1.159155E 06	4.973878E 04
114.32	73500.0	0.0	-74969.9	12089.2	-133.8	-4164.9	1.159155E 06	4.973878E 04
114.42	73500.0	0.0	-74969.9	12089.2	-133.8	-4164.9	1.159155E 06	4.973878E 04
114.52	73500.0	0.0	-74969.9	12089.2	-133.8	-4164.9	1.159155E 06	4.973878E 04
114.62	73500.0	0.0	-74969.9	12089.2	-133.8	-4164.9	1.159155E 06	4.973878E 04
114.72	73500.0	0.0	-74969.9	12089.2	-133.8	-4164.9	1.159155E 06	4.973878E 04
114.82	73500.0	0.0	-74969.9	12089.2	-133.8	-4164.9	1.159155E 06	4.973878E 04
114.92	73500.0	0.0	-74969.9	12089.2	-133.8	-4164.9	1.159155E 06	4.973878E 04
114.13	73500.0	0.0	-74969.9	12089.2	-7708.0	-4164.9	1.159155E 06	1.088472E 06
114.23	73500.0	0.0	-74969.9	12089.2	-7708.0	-4164.9	1.159155E 06	1.088472E 06
114.33	73500.0	0.0	-74969.9	12089.2	-7708.0	-4164.9	1.159155E 06	1.088472E 06
114.43	73500.0	0.0	-74969.9	12089.2	-7708.0	-4164.9	1.159155E 06	1.088472E 06
114.53	73500.0	0.0	-74969.9	12089.2	-7708.0	-4164.9	1.159155E 06	1.088472E 06
114.63	73500.0	0.0	-74969.9	12089.2	-7708.0	-4164.9	1.159155E 06	1.088472E 06
114.73	73500.0	0.0	-74969.9	12089.2	-7708.0	-4164.9	1.159155E 06	1.088472E 06
114.83	73500.0	0.0	-74969.9	12089.2	-7708.0	-4164.9	1.159155E 06	1.088472E 06
114.93	73500.0	0.0	-74969.9	12089.2	-7708.0	-4164.9	1.159155E 06	1.088472E 06

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TABLE XVI (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 114

PYLON HOOK LOADS - AERODYNAMIC CONSIDERATIONS

CONFIGURATION 1.0 WITH FINS

COND. NO.	RHO SLUGS/FT**3	VELOCITY KEAS	XCP INCHES	YCP INCHES	ZCP INCHES	ALPHA DEGREES	BETA DEGREES
114.11	0.0023769	260.000	170.210	0.000	-26.000	-8.700	-7.180
114.21	0.0023769	260.000	170.210	0.000	-26.000	-8.700	-7.180
114.31	0.0023769	260.000	170.210	0.000	-26.000	-8.700	-7.180
114.41	0.0023769	260.000	170.210	0.000	-26.000	-8.700	-7.180
114.51	0.0023769	260.000	170.210	0.000	-26.000	-8.700	-7.180
114.61	0.0023769	260.000	170.210	0.000	-26.000	-8.700	-7.180
114.71	0.0023769	260.000	170.210	0.000	-26.000	-8.700	-7.180
114.81	0.0023769	260.000	170.210	0.000	-26.000	-8.700	-7.180
114.91	0.0023769	260.000	170.210	0.000	-26.000	-8.700	-7.180
114.12	0.0023769	260.000	170.210	0.000	-26.000	-8.700	0.000
114.22	0.0023769	260.000	170.210	0.000	-26.000	-8.700	0.000
114.32	0.0023769	260.000	170.210	0.000	-26.000	-8.700	0.000
114.42	0.0023769	260.000	170.210	0.000	-26.000	-8.700	0.000
114.52	0.0023769	260.000	170.210	0.000	-26.000	-8.700	0.000
114.62	0.0023769	260.000	170.210	0.000	-26.000	-8.700	0.000
114.72	0.0023769	260.000	170.210	0.000	-26.000	-8.700	0.000
114.82	0.0023769	260.000	170.210	0.000	-26.000	-8.700	0.000
114.92	0.0023769	260.000	170.210	0.000	-26.000	-8.700	0.000
114.13	0.0023769	260.000	170.210	0.000	-26.000	-8.700	7.180
114.23	0.0023769	260.000	170.210	0.000	-26.000	-8.700	7.180
114.33	0.0023769	260.000	170.210	0.000	-26.000	-8.700	7.180
114.43	0.0023769	260.000	170.210	0.000	-26.000	-8.700	7.180
114.53	0.0023769	260.000	170.210	0.000	-26.000	-8.700	7.180
114.63	0.0023769	260.000	170.210	0.000	-26.000	-8.700	7.180
114.73	0.0023769	260.000	170.210	0.000	-26.000	-8.700	7.180
114.83	0.0023769	260.000	170.210	0.000	-26.000	-8.700	7.180
114.93	0.0023769	260.000	170.210	0.000	-26.000	-8.700	7.180

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TABLE XVI (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 114

PYLON HOOK LOADS - INERTIA CONSIDERATIONS

CONFIGURATION 1.0 WITH FINS

COND. NO.	DTV WT. POUNDS	ULTIMATE NX	LOAD NY	FACTOR NZ	XCG INCHES	YCG INCHES	ZCG INCHES
114.11	49000.0	1.50	0.00	-1.53	167.560	-0.650	-27.350
114.21	49000.0	1.50	0.00	-1.53	167.560	0.000	-27.350
114.31	49000.0	1.50	0.00	-1.53	167.560	0.650	-27.350
114.41	49000.0	1.50	0.00	-1.53	170.210	-0.650	-27.350
114.51	49000.0	1.50	0.00	-1.53	170.210	0.000	-27.350
114.61	49000.0	1.50	0.00	-1.53	170.210	0.650	-27.350
114.71	49000.0	1.50	0.00	-1.53	172.860	-0.650	-27.350
114.81	49000.0	1.50	0.00	-1.53	172.860	0.000	-27.350
114.91	49000.0	1.50	0.00	-1.53	172.860	0.650	-27.350
114.12	49000.0	1.50	0.00	-1.53	167.560	-0.650	-27.350
114.22	49000.0	1.50	0.00	-1.53	167.560	0.000	-27.350
114.32	49000.0	1.50	0.00	-1.53	167.560	0.650	-27.350
114.42	49000.0	1.50	0.00	-1.53	170.210	-0.650	-27.350
114.52	49000.0	1.50	0.00	-1.53	170.210	0.000	-27.350
114.62	49000.0	1.50	0.00	-1.53	170.210	0.650	-27.350
114.72	49000.0	1.50	0.00	-1.53	172.860	-0.650	-27.350
114.82	49000.0	1.50	0.00	-1.53	172.860	0.000	-27.350
114.92	49000.0	1.50	0.00	-1.53	172.860	0.650	-27.350
114.13	49000.0	1.50	0.00	-1.53	167.560	-0.650	-27.350
114.23	49000.0	1.50	0.00	-1.53	167.560	0.000	-27.350
114.33	49000.0	1.50	0.00	-1.53	167.560	0.650	-27.350
114.43	49000.0	1.50	0.00	-1.53	170.210	-0.650	-27.350
114.53	49000.0	1.50	0.00	-1.53	170.210	0.000	-27.350
114.63	49000.0	1.50	0.00	-1.53	170.210	0.650	-27.350
114.73	49000.0	1.50	0.00	-1.53	172.860	-0.650	-27.350
114.83	49000.0	1.50	0.00	-1.53	172.860	0.000	-27.350
114.93	49000.0	1.50	0.00	-1.53	172.860	0.650	-27.350

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TABLE XVII
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FLAPS) CONDITION 115

PYLON HOOK LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON DTV)

CONFIGURATION 1.0 WITH FINS

COND. NO.	VA POUNDS	VBL POUNDS	VBR POUNDS	VCL POUNDS	VCR POUNDS	DCL POUNDS	DCR POUNDS	SA POUNDS	SCL POUNDS
115.11	30201.8	0.0	0.0	20403.5	19671.1	-30970.3	-31596.2	2108.9	-9190.9
115.21	30201.8	0.0	0.0	19681.8	20392.7	-30938.1	-31628.4	2325.7	-9407.8
115.31	30201.8	0.0	0.0	18960.2	21114.4	-30906.0	-31660.6	2542.6	-9624.6
115.41	29260.2	0.0	0.0	20874.3	20141.9	-30970.3	-31596.2	2108.9	-9190.9
115.51	29260.2	0.0	0.0	20152.6	20863.5	-30938.1	-31628.4	2325.7	-9407.8
115.61	29260.2	0.0	0.0	19431.0	21585.2	-30906.0	-31660.6	2542.6	-9624.6
115.71	28318.7	0.0	0.0	21345.0	20612.7	-30970.3	-31596.2	2108.9	-9190.9
115.81	28318.7	0.0	0.0	20623.4	21334.3	-30938.1	-31628.4	2325.7	-9407.8
115.91	28318.7	0.0	0.0	19901.7	22056.0	-30906.0	-31660.6	2542.6	-9624.6
115.12	30201.8	0.0	0.0	20730.9	19343.7	-31340.8	-31225.7	-387.7	508.7
115.22	30201.8	0.0	0.0	20009.2	20065.4	-31308.6	-31257.9	-170.8	291.8
115.32	30201.8	0.0	0.0	19287.5	20787.0	-31276.4	-31290.1	46.1	75.0
115.42	29260.2	0.0	0.0	21201.6	19814.5	-31340.8	-31225.7	-387.7	508.7
115.52	29260.2	0.0	0.0	20480.0	20536.2	-31308.6	-31257.9	-170.8	291.8
115.62	29260.2	0.0	0.0	19758.3	21257.8	-31276.4	-31290.1	46.1	75.0
115.72	28318.7	0.0	0.0	21672.4	20285.3	-31340.8	-31225.7	-387.7	508.7
115.82	28318.7	0.0	0.0	20950.8	21006.9	-31308.6	-31257.9	-170.8	291.8
115.92	28318.7	0.0	0.0	20229.1	21728.6	-31276.4	-31290.1	46.1	75.0
115.13	30201.8	0.0	0.0	21058.2	19016.3	-31711.3	-30855.3	-2884.2	10208.3
115.23	30201.8	0.0	0.0	20336.6	19738.0	-31679.1	-30887.4	-2667.3	9991.5
115.33	30201.8	0.0	0.0	19614.9	20459.6	-31646.9	-30919.6	-2450.4	9774.6
115.43	29260.2	0.0	0.0	21529.0	19487.1	-31711.3	-30855.3	-2884.2	10208.3
115.53	29260.2	0.0	0.0	20807.4	20208.8	-31679.1	-30887.4	-2667.3	9991.5
115.63	29260.2	0.0	0.0	20085.7	20930.4	-31646.9	-30919.6	-2450.4	9774.6
115.73	28318.7	0.0	0.0	21999.8	19957.9	-31711.3	-30855.3	-2884.2	10208.3
115.83	28318.7	0.0	0.0	21278.2	20679.6	-31679.1	-30887.4	-2667.3	9991.5
115.93	28318.7	0.0	0.0	20556.5	21401.2	-31646.9	-30919.6	-2450.4	9774.6

TABLE XVII (CONTINUED)
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FINS) CONDITION 115

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FINS

COND. NO.	CASE 1				CASE 2			
	V1 POUNDS	V2 POUNDS	V3 POUNDS	V4 POUNDS	V1 POUNDS	V2 POUNDS	V3 POUNDS	V4 POUNDS
115.11	-32929.7	-39367.2	6286.6	-6056.2	-33874.2	-38420.6	7313.2	-7084.9
115.21	-32496.0	-40007.0	7621.4	-7184.7	-33590.7	-38909.9	8811.3	-8377.1
115.31	-32062.3	-40646.9	8956.1	-8313.3	-33307.2	-39399.2	10309.3	-9669.3
115.41	-32206.9	-38644.4	5602.9	-6818.0	-33151.4	-37697.8	6629.5	-7846.8
115.51	-31773.2	-39284.2	6937.7	-7946.6	-32867.9	-38187.1	8127.6	-9139.0
115.61	-31339.5	-39924.1	8272.4	-9075.2	-32584.4	-38676.4	9625.6	-10431.2
115.71	-31484.1	-37921.6	4919.2	-7579.9	-32428.6	-36975.0	5945.8	-8608.6
115.81	-31050.4	-38561.5	6253.9	-8708.5	-32145.1	-37464.3	7443.8	-9900.8
115.91	-30616.7	-39201.3	7588.7	-9837.1	-31861.6	-37953.6	8941.9	-11193.1
115.12	-36104.9	-34862.1	-1906.2	806.7	-35935.9	-35031.4	-2089.8	990.7
115.22	-35671.2	-35501.9	-571.4	-321.9	-35652.5	-35520.7	-591.8	-301.5
115.32	-35237.5	-36141.8	763.3	-1450.5	-35369.0	-36010.0	906.3	-1593.8
115.42	-35382.1	-34139.3	-2589.9	44.8	-35213.1	-34308.6	-2773.5	228.8
115.52	-34948.4	-34779.2	-1255.1	-1083.8	-34929.7	-34797.9	-1275.5	-1063.4
115.62	-34514.7	-35419.0	79.6	-2212.4	-34646.2	-35287.2	222.6	-2355.6
115.72	-34659.3	-33416.5	-3273.6	-717.1	-34490.3	-33585.8	-3457.2	-533.0
115.82	-34225.6	-34056.4	-1938.8	-1845.6	-34206.9	-34075.1	-1959.2	-1825.3
115.92	-33791.9	-34696.2	-604.1	-2974.2	-33923.4	-34564.4	-461.1	-3117.5
115.13	-39280.0	-30357.0	-10099.0	7669.5	-37997.7	-31642.2	-11492.9	9066.3
115.23	-38846.3	-30996.8	-8764.3	6541.0	-37714.2	-32131.5	-9994.8	7774.1
115.33	-38412.6	-31636.7	-7429.5	5412.4	-37430.8	-32620.8	-8496.8	6481.9
115.43	-38557.2	-29634.2	-10782.7	6907.7	-37274.9	-30919.4	-12176.6	8304.4
115.53	-38123.5	-30274.0	-9448.0	5779.1	-36991.4	-31408.7	-10678.5	7012.2
115.63	-37689.8	-30913.9	-8113.2	4650.5	-36708.0	-31898.0	-9180.5	5720.0
115.73	-37834.4	-28911.4	-11466.4	6145.8	-36552.1	-30196.6	-12860.3	7542.6
115.83	-37400.7	-29551.3	-10131.7	5017.2	-36268.6	-30685.9	-11362.2	6250.3
115.93	-36967.0	-30191.1	-8796.9	3888.6	-35985.2	-31175.2	-9864.2	4958.1

TABLE XVII (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 115

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FINS

COND. NO.	CASE 1 AND 2		D3 POUNDS	D4 POUNDS
	S1 POUNDS	S2 POUNDS		
115.11	-1515.0	-1515.0	5056.0	5056.0
115.21	-1689.3	-1689.3	5230.3	5230.3
115.31	-1863.6	-1863.6	5404.7	5404.7
115.41	-1515.0	-1515.0	5056.0	5056.0
115.51	-1689.3	-1689.3	5230.3	5230.3
115.61	-1863.6	-1863.6	5404.7	5404.7
115.71	-1515.0	-1515.0	5056.0	5056.0
115.81	-1689.3	-1689.3	5230.3	5230.3
115.91	-1863.6	-1863.6	5404.7	5404.7
115.12	148.2	148.2	-208.8	-208.8
115.22	-26.1	-26.1	-34.4	-34.4
115.32	-200.4	-200.4	139.9	139.9
115.42	148.2	148.2	-208.8	-208.8
115.52	-26.1	-26.1	-34.4	-34.4
115.62	-200.4	-200.4	139.9	139.9
115.72	148.2	148.2	-208.8	-208.8
115.82	-26.1	-26.1	-34.4	-34.4
115.92	-200.4	-200.4	139.9	139.9
115.13	1811.5	1811.5	-5473.5	-5473.5
115.23	1637.1	1637.1	-5299.2	-5299.2
115.33	1462.8	1462.8	-5124.8	-5124.8
115.43	1811.5	1811.5	-5473.5	-5473.5
115.53	1637.1	1637.1	-5299.2	-5299.2
115.63	1462.8	1462.8	-5124.8	-5124.8
115.73	1811.5	1811.5	-5473.5	-5473.5
115.83	1637.1	1637.1	-5299.2	-5299.2
115.93	1462.8	1462.8	-5124.8	-5124.8

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TABLE XVII . (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 115

INERTIA AND AIRLOADS - ULTIMATE

INERTIA LOADS - PLUS FWD, LEFT AND DOWN
 AIRLOAD FORCES - PLUS AFT, RIGHT AND UP
 AIRLOAD MOMENTS - PLUS NOSE UP AND NOSE RIGHT

CONFIGURATION 1.0 WITH FINS

COND. NO.	PNX FWD. POUNDS	PNY LEFT POUNDS	PNZ DOWN POUNDS	PX AFT POUNDS	PY RIGHT POUNDS	PZ UP POUNDS	MY NOSE UP INCH-LBS.	MZ NOSE RIGHT INCH-LBS.
115.11	73500.0	0.0	-74969.9	10933.5	7082.1	-4693.5	1.270769E 06	-9.428593E 05
115.21	73500.0	0.0	-74969.9	10933.5	7082.1	-4693.5	1.270769E 06	-9.428593E 05
115.31	73500.0	0.0	-74969.9	10933.5	7082.1	-4693.5	1.270769E 06	-9.428593E 05
115.41	73500.0	0.0	-74969.9	10933.5	7082.1	-4693.5	1.270769E 06	-9.428593E 05
115.51	73500.0	0.0	-74969.9	10933.5	7082.1	-4693.5	1.270769E 06	-9.428593E 05
115.61	73500.0	0.0	-74969.9	10933.5	7082.1	-4693.5	1.270769E 06	-9.428593E 05
115.71	73500.0	0.0	-74969.9	10933.5	7082.1	-4693.5	1.270769E 06	-9.428593E 05
115.81	73500.0	0.0	-74969.9	10933.5	7082.1	-4693.5	1.270769E 06	-9.428593E 05
115.91	73500.0	0.0	-74969.9	10933.5	7082.1	-4693.5	1.270769E 06	-9.428593E 05
115.12	73500.0	0.0	-74969.9	10933.5	-121.0	-4693.5	1.270769E 06	4.498382E 04
115.22	73500.0	0.0	-74969.9	10933.5	-121.0	-4693.5	1.270769E 06	4.498382E 04
115.32	73500.0	0.0	-74969.9	10933.5	-121.0	-4693.5	1.270769E 06	4.498382E 04
115.42	73500.0	0.0	-74969.9	10933.5	-121.0	-4693.5	1.270769E 06	4.498382E 04
115.52	73500.0	0.0	-74969.9	10933.5	-121.0	-4693.5	1.270769E 06	4.498382E 04
115.62	73500.0	0.0	-74969.9	10933.5	-121.0	-4693.5	1.270769E 06	4.498382E 04
115.72	73500.0	0.0	-74969.9	10933.5	-121.0	-4693.5	1.270769E 06	4.498382E 04
115.82	73500.0	0.0	-74969.9	10933.5	-121.0	-4693.5	1.270769E 06	4.498382E 04
115.92	73500.0	0.0	-74969.9	10933.5	-121.0	-4693.5	1.270769E 06	4.498382E 04
115.13	73500.0	0.0	-74969.9	10933.5	-7324.2	-4693.5	1.270769E 06	1.032827E 06
115.23	73500.0	0.0	-74969.9	10933.5	-7324.2	-4693.5	1.270769E 06	1.032827E 06
115.33	73500.0	0.0	-74969.9	10933.5	-7324.2	-4693.5	1.270769E 06	1.032827E 06
115.43	73500.0	0.0	-74969.9	10933.5	-7324.2	-4693.5	1.270769E 06	1.032827E 06
115.53	73500.0	0.0	-74969.9	10933.5	-7324.2	-4693.5	1.270769E 06	1.032827E 06
115.63	73500.0	0.0	-74969.9	10933.5	-7324.2	-4693.5	1.270769E 06	1.032827E 06
115.73	73500.0	0.0	-74969.9	10933.5	-7324.2	-4693.5	1.270769E 06	1.032827E 06
115.83	73500.0	0.0	-74969.9	10933.5	-7324.2	-4693.5	1.270769E 06	1.032827E 06
115.93	73500.0	0.0	-74969.9	10933.5	-7324.2	-4693.5	1.270769E 06	1.032827E 06

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TABLE XVII (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 115

PYLON HOOK LOADS - AERODYNAMIC CONSIDERATIONS

CONFIGURATION 1.0 WITH FINS

COND. NO.	RHO SLUGS/FT**3	VELOCITY KEAS	XCP INCHES	YCP INCHES	ZCP INCHES	ALPHA DEGREES	BETA DEGREES
115.11	0.0007699	247.260	170.210	0.000	-26.000	-10.400	-7.550
115.21	0.0007699	247.260	170.210	0.000	-26.000	-10.400	-7.550
115.31	0.0007699	247.260	170.210	0.000	-26.000	-10.400	-7.550
115.41	0.0007699	247.260	170.210	0.000	-26.000	-10.400	-7.550
115.51	0.0007699	247.260	170.210	0.000	-26.000	-10.400	-7.550
115.61	0.0007699	247.260	170.210	0.000	-26.000	-10.400	-7.550
115.71	0.0007699	247.260	170.210	0.000	-26.000	-10.400	-7.550
115.81	0.0007699	247.260	170.210	0.000	-26.000	-10.400	-7.550
115.91	0.0007699	247.260	170.210	0.000	-26.000	-10.400	-7.550
115.12	0.0007699	247.260	170.210	0.000	-26.000	-10.400	0.000
115.22	0.0007699	247.260	170.210	0.000	-26.000	-10.400	0.000
115.32	0.0007699	247.260	170.210	0.000	-26.000	-10.400	0.000
115.42	0.0007699	247.260	170.210	0.000	-26.000	-10.400	0.000
115.52	0.0007699	247.260	170.210	0.000	-26.000	-10.400	0.000
115.62	0.0007699	247.260	170.210	0.000	-26.000	-10.400	0.000
115.72	0.0007699	247.260	170.210	0.000	-26.000	-10.400	0.000
115.82	0.0007699	247.260	170.210	0.000	-26.000	-10.400	0.000
115.92	0.0007699	247.260	170.210	0.000	-26.000	-10.400	0.000
115.13	0.0007699	247.260	170.210	0.000	-26.000	-10.400	7.550
115.23	0.0007699	247.260	170.210	0.000	-26.000	-10.400	7.550
115.33	0.0007699	247.260	170.210	0.000	-26.000	-10.400	7.550
115.43	0.0007699	247.260	170.210	0.000	-26.000	-10.400	7.550
115.53	0.0007699	247.260	170.210	0.000	-26.000	-10.400	7.550
115.63	0.0007699	247.260	170.210	0.000	-26.000	-10.400	7.550
115.73	0.0007699	247.260	170.210	0.000	-26.000	-10.400	7.550
115.83	0.0007699	247.260	170.210	0.000	-26.000	-10.400	7.550
115.93	0.0007699	247.260	170.210	0.000	-26.000	-10.400	7.550

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TABLE XVII (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 115

PYLON HOOK LOADS - INERTIA CONSIDERATIONS

CONFIGURATION 1.0 WITH FINS

COND. NO.	DTV WT. POUNDS	ULTIMATE NX	LOAD NY	FACTOR NZ	XCG INCHES	YCG INCHES	ZCG INCHES
115.11	49000.0	1.50	0.00	-1.53	167.560	-0.650	-27.350
115.21	49000.0	1.50	0.00	-1.53	167.560	0.000	-27.350
115.31	49000.0	1.50	0.00	-1.53	167.560	0.650	-27.350
115.41	49000.0	1.50	0.00	-1.53	170.210	-0.650	-27.350
115.51	49000.0	1.50	0.00	-1.53	170.210	0.000	-27.350
115.61	49000.0	1.50	0.00	-1.53	170.210	0.650	-27.350
115.71	49000.0	1.50	0.00	-1.53	172.860	-0.650	-27.350
115.81	49000.0	1.50	0.00	-1.53	172.860	0.000	-27.350
115.91	49000.0	1.50	0.00	-1.53	172.860	0.650	-27.350
115.12	49000.0	1.50	0.00	-1.53	167.560	-0.650	-27.350
115.22	49000.0	1.50	0.00	-1.53	167.560	0.000	-27.350
115.32	49000.0	1.50	0.00	-1.53	167.560	0.650	-27.350
115.42	49000.0	1.50	0.00	-1.53	170.210	-0.650	-27.350
115.52	49000.0	1.50	0.00	-1.53	170.210	0.000	-27.350
115.62	49000.0	1.50	0.00	-1.53	170.210	0.650	-27.350
115.72	49000.0	1.50	0.00	-1.53	172.860	-0.650	-27.350
115.82	49000.0	1.50	0.00	-1.53	172.860	0.000	-27.350
115.92	49000.0	1.50	0.00	-1.53	172.860	0.650	-27.350
115.13	49000.0	1.50	0.00	-1.53	167.560	-0.650	-27.350
115.23	49000.0	1.50	0.00	-1.53	167.560	0.000	-27.350
115.33	49000.0	1.50	0.00	-1.53	167.560	0.650	-27.350
115.43	49000.0	1.50	0.00	-1.53	170.210	-0.650	-27.350
115.53	49000.0	1.50	0.00	-1.53	170.210	0.000	-27.350
115.63	49000.0	1.50	0.00	-1.53	170.210	0.650	-27.350
115.73	49000.0	1.50	0.00	-1.53	172.860	-0.650	-27.350
115.83	49000.0	1.50	0.00	-1.53	172.860	0.000	-27.350
115.93	49000.0	1.50	0.00	-1.53	172.860	0.650	-27.350

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TABLE XVIII
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FLAPS) CONDITION 116

PYLON HOOK LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON DTV)

CONFIGURATION 1.0 WITH FINS

COND. NO.	VA POUNDS	VBL POUNDS	VBR POUNDS	VCL POUNDS	VCR POUNDS	DCL POUNDS	DCR POUNDS	SA POUNDS	SCL POUNDS
116.11	21597.3	0.0	0.0	25897.2	24657.6	39126.0	38619.8	1705.6	-6145.3
116.21	21597.3	0.0	0.0	25062.6	25492.3	39093.9	38652.0	1488.7	-5928.4
116.31	21597.3	0.0	0.0	24227.9	26326.9	39061.7	38684.2	1271.9	-5711.6
116.41	20655.8	0.0	0.0	26368.0	25128.4	39126.0	38619.8	1705.6	-6145.3
116.51	20655.8	0.0	0.0	25533.4	25963.1	39093.9	38652.0	1488.7	-5928.4
116.61	20655.8	0.0	0.0	24698.7	26797.7	39061.7	38684.2	1271.9	-5711.6
116.71	19714.2	0.0	0.0	26838.8	25599.2	39126.0	38619.8	1705.6	-6145.3
116.81	19714.2	0.0	0.0	26004.2	26433.8	39093.9	38652.0	1488.7	-5928.4
116.91	19714.2	0.0	0.0	25169.5	27268.5	39061.7	38684.2	1271.9	-5711.6
116.12	21597.3	0.0	0.0	26101.1	24453.7	38895.3	38850.6	150.5	-103.5
116.22	21597.3	0.0	0.0	25266.5	25288.3	38863.1	38882.8	-66.3	113.3
116.32	21597.3	0.0	0.0	24431.9	26123.0	38830.9	38915.0	-283.2	330.2
116.42	20655.8	0.0	0.0	26571.9	24924.5	38895.3	38850.6	150.5	-103.5
116.52	20655.8	0.0	0.0	25737.3	25759.1	38863.1	38882.8	-66.3	113.3
116.62	20655.8	0.0	0.0	24902.6	26593.8	38830.9	38915.0	-283.2	330.2
116.72	19714.2	0.0	0.0	27042.7	25395.3	38895.3	38850.6	150.5	-103.5
116.82	19714.2	0.0	0.0	26208.1	26229.9	38863.1	38882.8	-66.3	113.3
116.92	19714.2	0.0	0.0	25373.4	27064.5	38830.9	38915.0	-283.2	330.2
116.13	21597.3	0.0	0.0	26305.1	24249.8	38664.5	39081.4	-1404.5	5938.2
116.23	21597.3	0.0	0.0	25470.4	25084.4	38632.3	39113.6	-1621.4	6155.1
116.33	21597.3	0.0	0.0	24635.8	25919.1	38600.1	39145.7	-1838.2	6372.0
116.43	20655.8	0.0	0.0	26775.8	24720.6	38664.5	39081.4	-1404.5	5938.2
116.53	20655.8	0.0	0.0	25941.2	25555.2	38632.3	39113.6	-1621.4	6155.1
116.63	20655.8	0.0	0.0	25106.6	26389.9	38600.1	39145.7	-1838.2	6372.0
116.73	19714.2	0.0	0.0	27246.6	25191.4	38664.5	39081.4	-1404.5	5938.2
116.83	19714.2	0.0	0.0	26412.0	26026.0	38632.3	39113.6	-1621.4	6155.1
116.93	19714.2	0.0	0.0	25577.4	26860.6	38600.1	39145.7	-1838.2	6372.0

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TABLE XVIII (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINs) CONDITION 116

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FINs

COND. NO.	CASE 1				CASE 2			
	V1 POUNDS	V2 POUNDS	V3 POUNDS	V4 POUNDS	V1 POUNDS	V2 POUNDS	V3 POUNDS	V4 POUNDS
116.11	-8855.9	-12431.7	-21525.2	-31129.5	-9392.0	-11894.5	-20942.6	-31713.3
116.21	-8308.6	-13217.2	-20034.4	-32382.1	-8994.8	-12529.4	-19288.5	-33129.6
116.31	-7761.2	-14002.8	-18543.6	-33634.7	-8597.7	-13164.4	-17634.4	-34545.8
116.41	-8133.1	-11708.9	-22208.9	-31891.4	-8669.2	-11171.7	-21626.3	-32475.2
116.51	-7585.8	-12494.5	-20718.1	-33144.0	-8272.0	-11806.6	-19972.2	-33891.5
116.61	-7038.4	-13280.0	-19227.3	-34396.6	-7874.9	-12441.6	-18318.1	-35307.7
116.71	-7410.4	-10986.1	-22892.6	-32653.2	-7946.4	-10448.9	-22310.0	-33237.1
116.81	-6863.0	-11771.7	-21401.8	-33905.8	-7549.3	-11083.9	-20655.9	-34653.3
116.91	-6315.7	-12557.2	-19911.1	-35158.4	-7152.2	-11718.8	-19001.8	-36069.6
116.12	-10833.7	-9625.5	-26628.4	-26854.7	-10676.2	-9783.4	-26799.6	-26683.2
116.22	-10286.4	-10411.1	-25137.6	-28107.3	-10279.1	-10418.3	-25145.5	-28099.4
116.32	-9739.0	-11196.6	-23646.8	-29359.9	-9882.0	-11053.3	-23491.4	-29515.7
116.42	-10110.9	-8902.8	-27312.1	-27616.6	-9953.4	-9060.6	-27483.3	-27445.1
116.52	-9563.6	-9688.3	-25821.3	-28869.2	-9556.3	-9695.5	-25829.2	-28861.3
116.62	-9016.2	-10473.8	-24330.5	-30121.8	-9159.2	-10330.5	-24175.1	-30277.6
116.72	-9388.1	-8180.0	-27995.8	-28378.4	-9230.6	-8337.8	-28167.0	-28206.9
116.82	-8840.8	-8965.5	-26505.1	-29631.0	-8833.5	-8972.8	-26513.0	-29623.1
116.92	-8293.4	-9751.0	-25014.2	-30883.7	-8436.4	-9607.7	-24858.8	-31039.4
116.13	-12811.5	-6819.4	-31731.6	-22579.9	-11960.5	-7672.3	-32656.6	-21653.0
116.23	-12264.1	-7604.9	-30240.8	-23832.5	-11563.3	-8307.3	-31002.5	-23069.2
116.33	-11716.8	-8390.4	-28750.0	-25085.2	-11166.2	-8942.2	-29348.4	-24485.5
116.43	-12088.7	-6096.6	-32415.3	-23341.8	-11237.7	-6949.5	-33340.3	-22414.8
116.53	-11541.3	-6882.1	-30924.5	-24594.4	-10840.5	-7584.5	-31686.3	-23831.1
116.63	-10994.0	-7667.6	-29433.7	-25847.0	-10443.4	-8219.4	-30032.1	-25247.4
116.73	-11365.9	-5373.8	-33099.1	-24103.6	-10514.9	-6226.7	-34024.1	-23176.7
116.83	-10818.5	-6159.3	-31608.3	-25356.2	-10117.8	-6861.7	-32370.0	-24592.9
116.93	-10271.2	-6944.8	-30117.4	-26608.9	-9720.7	-7496.6	-30715.9	-26009.2

TABLE XVIII (CONTINUED)
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FINS) CONDITION 116

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FINS

COND. NO.	S1 POUNDS	S2 POUNDS	CASE 1 AND 2 S3 POUNDS	S4 POUNDS	D3 POUNDS	D4 POUNDS
116.11	-964.4	-964.4	3184.3	3184.3	-39750.4	-39750.4
116.21	-790.1	-790.1	3010.0	3010.0	-39750.4	-39750.4
116.31	-615.8	-615.8	2835.6	2835.6	-39750.4	-39750.4
116.41	-964.4	-964.4	3184.3	3184.3	-39750.4	-39750.4
116.51	-790.1	-790.1	3010.0	3010.0	-39750.4	-39750.4
116.61	-615.8	-615.8	2835.6	2835.6	-39750.4	-39750.4
116.71	-964.4	-964.4	3184.3	3184.3	-39750.4	-39750.4
116.81	-790.1	-790.1	3010.0	3010.0	-39750.4	-39750.4
116.91	-615.8	-615.8	2835.6	2835.6	-39750.4	-39750.4
116.12	71.5	71.5	-95.1	-95.1	-39750.4	-39750.4
116.22	245.9	245.9	-269.4	-269.4	-39750.4	-39750.4
116.32	420.2	420.2	-443.7	-443.7	-39750.4	-39750.4
116.42	71.5	71.5	-95.1	-95.1	-39750.4	-39750.4
116.52	245.9	245.9	-269.4	-269.4	-39750.4	-39750.4
116.62	420.2	420.2	-443.7	-443.7	-39750.4	-39750.4
116.72	71.5	71.5	-95.1	-95.1	-39750.4	-39750.4
116.82	245.9	245.9	-269.4	-269.4	-39750.4	-39750.4
116.92	420.2	420.2	-443.7	-443.7	-39750.4	-39750.4
116.13	1107.5	1107.5	-3374.4	-3374.4	-39750.4	-39750.4
116.23	1281.9	1281.9	-3548.8	-3548.8	-39750.4	-39750.4
116.33	1456.2	1456.2	-3723.1	-3723.1	-39750.4	-39750.4
116.43	1107.5	1107.5	-3374.4	-3374.4	-39750.4	-39750.4
116.53	1281.9	1281.9	-3548.8	-3548.8	-39750.4	-39750.4
116.63	1456.2	1456.2	-3723.1	-3723.1	-39750.4	-39750.4
116.73	1107.5	1107.5	-3374.4	-3374.4	-39750.4	-39750.4
116.83	1281.9	1281.9	-3548.8	-3548.8	-39750.4	-39750.4
116.93	1456.2	1456.2	-3723.1	-3723.1	-39750.4	-39750.4

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TABLE XVIII (CONTINUED)
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FINS) CONDITION 116

INERTIA AND AIRLOADS - ULTIMATE

INERTIA LOADS - PLUS FWD, LEFT AND DOWN
AIRLOAD FORCES - PLUS AFT, RIGHT AND UP
AIRLOAD MOMENTS - PLUS NOSE UP AND NOSE RIGHT

CONFIGURATION 1.0 WITH FINS

COND. NO.	PNX FWD. POUNDS	PNY LEFT POUNDS	PNZ DOWN POUNDS	PX AFT POUNDS	PY RIGHT POUNDS	PZ UP POUNDS	MY NOSE UP INCH-LBS.	MZ NOSE RIGHT INCH-LBS.
116.11	-73500.0	0.0	-74969.9	4245.9	4439.7	-2817.7	7.323012E 05	-5.978466E 05
116.21	-73500.0	0.0	-74969.9	4245.9	4439.7	-2817.7	7.323012E 05	-5.978466E 05
116.31	-73500.0	0.0	-74969.9	4245.9	4439.7	-2817.7	7.323012E 05	-5.978466E 05
116.41	-73500.0	0.0	-74969.9	4245.9	4439.7	-2817.7	7.323012E 05	-5.978466E 05
116.51	-73500.0	0.0	-74969.9	4245.9	4439.7	-2817.7	7.323012E 05	-5.978466E 05
116.61	-73500.0	0.0	-74969.9	4245.9	4439.7	-2817.7	7.323012E 05	-5.978466E 05
116.71	-73500.0	0.0	-74969.9	4245.9	4439.7	-2817.7	7.323012E 05	-5.978466E 05
116.81	-73500.0	0.0	-74969.9	4245.9	4439.7	-2817.7	7.323012E 05	-5.978466E 05
116.91	-73500.0	0.0	-74969.9	4245.9	4439.7	-2817.7	7.323012E 05	-5.978466E 05
116.12	-73500.0	0.0	-74969.9	4245.9	-47.0	-2817.7	7.323012E 05	1.746905E 04
116.22	-73500.0	0.0	-74969.9	4245.9	-47.0	-2817.7	7.323012E 05	1.746905E 04
116.32	-73500.0	0.0	-74969.9	4245.9	-47.0	-2817.7	7.323012E 05	1.746905E 04
116.42	-73500.0	0.0	-74969.9	4245.9	-47.0	-2817.7	7.323012E 05	1.746905E 04
116.52	-73500.0	0.0	-74969.9	4245.9	-47.0	-2817.7	7.323012E 05	1.746905E 04
116.62	-73500.0	0.0	-74969.9	4245.9	-47.0	-2817.7	7.323012E 05	1.746905E 04
116.72	-73500.0	0.0	-74969.9	4245.9	-47.0	-2817.7	7.323012E 05	1.746905E 04
116.82	-73500.0	0.0	-74969.9	4245.9	-47.0	-2817.7	7.323012E 05	1.746905E 04
116.92	-73500.0	0.0	-74969.9	4245.9	-47.0	-2817.7	7.323012E 05	1.746905E 04
116.13	-73500.0	0.0	-74969.9	4245.9	-4533.7	-2817.7	7.323012E 05	6.327848E 05
116.23	-73500.0	0.0	-74969.9	4245.9	-4533.7	-2817.7	7.323012E 05	6.327848E 05
116.33	-73500.0	0.0	-74969.9	4245.9	-4533.7	-2817.7	7.323012E 05	6.327848E 05
116.43	-73500.0	0.0	-74969.9	4245.9	-4533.7	-2817.7	7.323012E 05	6.327848E 05
116.53	-73500.0	0.0	-74969.9	4245.9	-4533.7	-2817.7	7.323012E 05	6.327848E 05
116.63	-73500.0	0.0	-74969.9	4245.9	-4533.7	-2817.7	7.323012E 05	6.327848E 05
116.73	-73500.0	0.0	-74969.9	4245.9	-4533.7	-2817.7	7.323012E 05	6.327848E 05
116.83	-73500.0	0.0	-74969.9	4245.9	-4533.7	-2817.7	7.323012E 05	6.327848E 05
116.93	-73500.0	0.0	-74969.9	4245.9	-4533.7	-2817.7	7.323012E 05	6.327848E 05

TABLE XVIII (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 116

PYLON HOOK LOADS - AERODYNAMIC CONSIDERATIONS

CONFIGURATION 1.0 WITH FINS

COND. NO.	RHO SLUGS/FT**3	VELOCITY KEAS	XCP INCHES	YCP INCHES	ZCP INCHES	ALPHA DEGREES	BETA DEGREES
116.11	0.0023769	154.085	170.210	0.000	-26.000	-15.100	-12.110
116.21	0.0023769	154.085	170.210	0.000	-26.000	-15.100	-12.110
116.31	0.0023769	154.085	170.210	0.000	-26.000	-15.100	-12.110
116.41	0.0023769	154.085	170.210	0.000	-26.000	-15.100	-12.110
116.51	0.0023769	154.085	170.210	0.000	-26.000	-15.100	-12.110
116.61	0.0023769	154.085	170.210	0.000	-26.000	-15.100	-12.110
116.71	0.0023769	154.085	170.210	0.000	-26.000	-15.100	-12.110
116.81	0.0023769	154.085	170.210	0.000	-26.000	-15.100	-12.110
116.91	0.0023769	154.085	170.210	0.000	-26.000	-15.100	-12.110
116.12	0.0023769	154.085	170.210	0.000	-26.000	-15.100	0.000
116.22	0.0023769	154.085	170.210	0.000	-26.000	-15.100	0.000
116.32	0.0023769	154.085	170.210	0.000	-26.000	-15.100	0.000
116.42	0.0023769	154.085	170.210	0.000	-26.000	-15.100	0.000
116.52	0.0023769	154.085	170.210	0.000	-26.000	-15.100	0.000
116.62	0.0023769	154.085	170.210	0.000	-26.000	-15.100	0.000
116.72	0.0023769	154.085	170.210	0.000	-26.000	-15.100	0.000
116.82	0.0023769	154.085	170.210	0.000	-26.000	-15.100	0.000
116.92	0.0023769	154.085	170.210	0.000	-26.000	-15.100	0.000
116.13	0.0023769	154.085	170.210	0.000	-26.000	-15.100	12.110
116.23	0.0023769	154.085	170.210	0.000	-26.000	-15.100	12.110
116.33	0.0023769	154.085	170.210	0.000	-26.000	-15.100	12.110
116.43	0.0023769	154.085	170.210	0.000	-26.000	-15.100	12.110
116.53	0.0023769	154.085	170.210	0.000	-26.000	-15.100	12.110
116.63	0.0023769	154.085	170.210	0.000	-26.000	-15.100	12.110
116.73	0.0023769	154.085	170.210	0.000	-26.000	-15.100	12.110
116.83	0.0023769	154.085	170.210	0.000	-26.000	-15.100	12.110
116.93	0.0023769	154.085	170.210	0.000	-26.000	-15.100	12.110

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TABLE XVIII (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 116

PYLON HOOK LOADS - INERTIA CONSIDERATIONS

CONFIGURATION 1.0 WITH FINS

COND. NO.	DTV WT. POUNDS	ULTIMATE NX	LOAD NY	FACTOR NZ	XCG INCHES	YCG INCHES	ZCG INCHES
116.11	49000.0	-1.50	0.00	-1.53	167.560	-0.650	-27.350
116.21	49000.0	-1.50	0.00	-1.53	167.560	0.000	-27.350
116.31	49000.0	-1.50	0.00	-1.53	167.560	0.650	-27.350
116.41	49000.0	-1.50	0.00	-1.53	170.210	-0.650	-27.350
116.51	49000.0	-1.50	0.00	-1.53	170.210	0.000	-27.350
116.61	49000.0	-1.50	0.00	-1.53	170.210	0.650	-27.350
116.71	49000.0	-1.50	0.00	-1.53	172.860	-0.650	-27.350
116.81	49000.0	-1.50	0.00	-1.53	172.860	0.000	-27.350
116.91	49000.0	-1.50	0.00	-1.53	172.860	0.650	-27.350
116.12	49000.0	-1.50	0.00	-1.53	167.560	-0.650	-27.350
116.22	49000.0	-1.50	0.00	-1.53	167.560	0.000	-27.350
116.32	49000.0	-1.50	0.00	-1.53	167.560	0.650	-27.350
116.42	49000.0	-1.50	0.00	-1.53	170.210	-0.650	-27.350
116.52	49000.0	-1.50	0.00	-1.53	170.210	0.000	-27.350
116.62	49000.0	-1.50	0.00	-1.53	170.210	0.650	-27.350
116.72	49000.0	-1.50	0.00	-1.53	172.860	-0.650	-27.350
116.82	49000.0	-1.50	0.00	-1.53	172.860	0.000	-27.350
116.92	49000.0	-1.50	0.00	-1.53	172.860	0.650	-27.350
116.13	49000.0	-1.50	0.00	-1.53	167.560	-0.650	-27.350
116.23	49000.0	-1.50	0.00	-1.53	167.560	0.000	-27.350
116.33	49000.0	-1.50	0.00	-1.53	167.560	0.650	-27.350
116.43	49000.0	-1.50	0.00	-1.53	170.210	-0.650	-27.350
116.53	49000.0	-1.50	0.00	-1.53	170.210	0.000	-27.350
116.63	49000.0	-1.50	0.00	-1.53	170.210	0.650	-27.350
116.73	49000.0	-1.50	0.00	-1.53	172.860	-0.650	-27.350
116.83	49000.0	-1.50	0.00	-1.53	172.860	0.000	-27.350
116.93	49000.0	-1.50	0.00	-1.53	172.860	0.650	-27.350

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TABLE XIX
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FLAPS) CONDITION 117

PYLON HOOK LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON DTV)

CONFIGURATION 1.0 WITH FINS

COND. NO.	VA POUNDS	VBL POUNDS	VBR POUNDS	VCL POUNDS	VCR POUNDS	DCL POUNDS	DCR POUNDS	SA POUNDS	SCL POUNDS
117.11	22916.3	0.0	0.0	24403.7	23485.0	43188.3	42400.8	2653.2	-10093.5
117.21	22916.3	0.0	0.0	23569.1	24319.7	43156.1	42433.0	2436.3	-9876.6
117.31	22916.3	0.0	0.0	22734.4	25154.3	43123.9	42465.2	2219.4	-9659.8
117.41	21974.7	0.0	0.0	24874.5	23955.8	43188.3	42400.8	2653.2	-10093.5
117.51	21974.7	0.0	0.0	24039.9	24790.4	43156.1	42433.0	2436.3	-9876.6
117.61	21974.7	0.0	0.0	23205.2	25625.1	43123.9	42465.2	2219.4	-9659.8
117.71	21033.1	0.0	0.0	25345.3	24426.6	43188.3	42400.8	2653.2	-10093.5
117.81	21033.1	0.0	0.0	24510.7	25261.2	43156.1	42433.0	2436.3	-9876.6
117.91	21033.1	0.0	0.0	23676.0	26095.9	43123.9	42465.2	2219.4	-9659.8
117.12	22916.3	0.0	0.0	24748.0	23140.8	42798.7	42790.4	28.0	105.8
117.22	22916.3	0.0	0.0	23913.3	23975.4	42766.5	42822.6	-188.8	322.7
117.32	22916.3	0.0	0.0	23078.7	24810.1	42734.4	42854.8	-405.7	539.6
117.42	21974.7	0.0	0.0	25218.8	23611.6	42798.7	42790.4	28.0	105.8
117.52	21974.7	0.0	0.0	24384.1	24446.2	42766.5	42822.6	-188.8	322.7
117.62	21974.7	0.0	0.0	23549.5	25280.9	42734.4	42854.8	-405.7	539.6
117.72	21033.1	0.0	0.0	25689.5	24082.4	42798.7	42790.4	28.0	105.8
117.82	21033.1	0.0	0.0	24854.9	24917.0	42766.5	42822.6	-188.8	322.7
117.92	21033.1	0.0	0.0	24020.3	25751.6	42734.4	42854.8	-405.7	539.6
117.13	22916.3	0.0	0.0	25092.2	22796.5	42409.2	43180.0	-2597.1	10305.1
117.23	22916.3	0.0	0.0	24257.6	23631.2	42377.0	43212.2	-2814.0	10522.0
117.33	22916.3	0.0	0.0	23422.9	24465.8	42344.8	43244.3	-3030.8	10738.9
117.43	21974.7	0.0	0.0	25563.0	23267.3	42409.2	43180.0	-2597.1	10305.1
117.53	21974.7	0.0	0.0	24728.4	24101.9	42377.0	43212.2	-2814.0	10522.0
117.63	21974.7	0.0	0.0	23893.7	24936.6	42344.8	43244.3	-3030.8	10738.9
117.73	21033.1	0.0	0.0	26033.8	23738.1	42409.2	43180.0	-2597.1	10305.1
117.83	21033.1	0.0	0.0	25199.2	24572.7	42377.0	43212.2	-2814.0	10522.0
117.93	21033.1	0.0	0.0	24364.5	25407.4	42344.8	43244.3	-3030.8	10738.9

TABLE XIX (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FIN) CONDITION 117

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FIN

COND. NO.	CASE 1				CASE 2			
	V1 POUNDS	V2 POUNDS	V3 POUNDS	V4 POUNDS	V1 POUNDS	V2 POUNDS	V3 POUNDS	V4 POUNDS
117.11	-7404.2	-14248.9	-17526.5	-33415.5	-8404.0	-13246.8	-16439.7	-34504.6
117.21	-6856.9	-15034.5	-16035.7	-34668.1	-8006.9	-13881.8	-14785.6	-35920.8
117.31	-6309.5	-15820.0	-14544.9	-35920.7	-7609.8	-14516.7	-13131.5	-37337.1
117.41	-6681.4	-13526.1	-18210.2	-34177.4	-7681.2	-12524.0	-17123.4	-35266.4
117.51	-6134.1	-14311.7	-16719.4	-35430.0	-7284.1	-13159.0	-15469.3	-36682.7
117.61	-5586.7	-15097.2	-15228.6	-36682.6	-6887.0	-13794.0	-13815.2	-38098.9
117.71	-5958.6	-12803.3	-18893.9	-34939.2	-6958.5	-11801.3	-17807.1	-36028.3
117.81	-5411.3	-13588.9	-17403.1	-36191.8	-6561.3	-12436.2	-16153.1	-37444.5
117.91	-4863.9	-14374.4	-15912.3	-37444.5	-6164.2	-13071.2	-14499.0	-38860.8
117.12	-10742.9	-9511.7	-26141.4	-26199.1	-10572.0	-9683.0	-26327.2	-26012.9
117.22	-10195.6	-10297.3	-24650.6	-27451.7	-10174.9	-10318.0	-24673.1	-27429.2
117.32	-9648.2	-11082.8	-23159.8	-28704.4	-9777.8	-10953.0	-23018.9	-28845.5
117.42	-10020.1	-8788.9	-26825.1	-26961.0	-9849.2	-8960.2	-27010.9	-26774.8
117.52	-9472.8	-9574.5	-25334.3	-28213.6	-9452.1	-9595.2	-25356.8	-28191.1
117.62	-8925.4	-10360.0	-23843.5	-29466.2	-9055.0	-10230.2	-23702.7	-29607.3
117.72	-9297.4	-8066.2	-27508.8	-27722.8	-9126.4	-8237.5	-27694.6	-27536.7
117.82	-8750.0	-8851.7	-26018.0	-28975.4	-8729.3	-8872.4	-26040.5	-28952.9
117.92	-8202.7	-9637.2	-24527.2	-30228.1	-8332.2	-9507.4	-24386.4	-30369.2
117.13	-14081.7	-4774.5	-34756.3	-18982.7	-12740.0	-6119.2	-36214.6	-17521.3
117.23	-13534.3	-5560.1	-33265.5	-20235.3	-12342.9	-6754.2	-34560.5	-18937.6
117.33	-12987.0	-6345.6	-31774.7	-21487.9	-11945.8	-7389.1	-32906.4	-20353.8
117.43	-13358.9	-4051.7	-35440.0	-19744.6	-12017.2	-5396.4	-36898.3	-18283.2
117.53	-12811.5	-4837.3	-33949.2	-20997.2	-11620.1	-6031.4	-35244.3	-19699.4
117.63	-12264.2	-5622.8	-32458.7	-22249.8	-11223.0	-6666.3	-33590.1	-21115.7
117.73	-12636.1	-3329.0	-36123.4	-20506.4	-11294.4	-4673.7	-37582.1	-19045.0
117.83	-12088.8	-4114.5	-34632.9	-21759.0	-10897.3	-5308.6	-35928.0	-20461.3
117.93	-11541.4	-4900.0	-33142.1	-23011.7	-10500.2	-5943.6	-34273.9	-21877.6

TABLE XIX (CONTINUED)
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FINS) CONDITION 117

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FINS

COND. NO.	S1 POUNDS	S2 POUNDS	CASE 1 AND 2 S3 POUNDS	S4 POUNDS	D3 POUNDS	D4 POUNDS
117.11	-1563.8	-1563.8	5283.9	5283.9	-43672.1	-43672.1
117.21	-1389.4	-1389.4	5109.6	5109.6	-43672.1	-43672.1
117.31	-1215.1	-1215.1	4935.2	4935.2	-43672.1	-43672.1
117.41	-1563.8	-1563.8	5283.9	5283.9	-43672.1	-43672.1
117.51	-1389.4	-1389.4	5109.6	5109.6	-43672.1	-43672.1
117.61	-1215.1	-1215.1	4935.2	4935.2	-43672.1	-43672.1
117.71	-1563.8	-1563.8	5283.9	5283.9	-43672.1	-43672.1
117.81	-1389.4	-1389.4	5109.6	5109.6	-43672.1	-43672.1
117.91	-1215.1	-1215.1	4935.2	4935.2	-43672.1	-43672.1
117.12	185.1	185.1	-252.0	-252.0	-43672.1	-43672.1
117.22	359.5	359.5	-426.4	-426.4	-43672.1	-43672.1
117.32	533.8	533.8	-600.7	-600.7	-43672.1	-43672.1
117.42	185.1	185.1	-252.0	-252.0	-43672.1	-43672.1
117.52	359.5	359.5	-426.4	-426.4	-43672.1	-43672.1
117.62	533.8	533.8	-600.7	-600.7	-43672.1	-43672.1
117.72	185.1	185.1	-252.0	-252.0	-43672.1	-43672.1
117.82	359.5	359.5	-426.4	-426.4	-43672.1	-43672.1
117.92	533.8	533.8	-600.7	-600.7	-43672.1	-43672.1
117.13	1934.0	1934.0	-5788.0	-5788.0	-43672.1	-43672.1
117.23	2108.4	2108.4	-5962.4	-5962.4	-43672.1	-43672.1
117.33	2282.7	2282.7	-6136.7	-6136.7	-43672.1	-43672.1
117.43	1934.0	1934.0	-5788.0	-5788.0	-43672.1	-43672.1
117.53	2108.4	2108.4	-5962.4	-5962.4	-43672.1	-43672.1
117.63	2282.7	2282.7	-6136.7	-6136.7	-43672.1	-43672.1
117.73	1934.0	1934.0	-5788.0	-5788.0	-43672.1	-43672.1
117.83	2108.4	2108.4	-5962.4	-5962.4	-43672.1	-43672.1
117.93	2282.7	2282.7	-6136.7	-6136.7	-43672.1	-43672.1

TABLE XIX (CONTINUED)
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FINS) CONDITION 117

INERTIA AND AIRLOADS - ULTIMATE

INERTIA LOADS - PLUS FWD, LEFT AND DOWN
AIRLOAD FORCES - PLUS AFT, RIGHT AND UP
AIRLOAD MOMENTS - PLUS NOSE UP AND NOSE RIGHT

CONFIGURATION 1.0 WITH FINS

COND. NO.	PNX FWD. POUNDS	PNY LEFT POUNDS	PNZ DOWN POUNDS	PX AFT POUNDS	PY RIGHT POUNDS	PZ UP POUNDS	MY NOSE UP INCH-LBS.	MZ NOSE RIGHT INCH-LBS.
117.11	-73500.0	0.0	-74969.9	12089.2	7440.3	-4164.9	1.159155E 06	-9.889950E 05
117.21	-73500.0	0.0	-74969.9	12089.2	7440.3	-4164.9	1.159155E 06	-9.889950E 05
117.31	-73500.0	0.0	-74969.9	12089.2	7440.3	-4164.9	1.159155E 06	-9.889950E 05
117.41	-73500.0	0.0	-74969.9	12089.2	7440.3	-4164.9	1.159155E 06	-9.889950E 05
117.51	-73500.0	0.0	-74969.9	12089.2	7440.3	-4164.9	1.159155E 06	-9.889950E 05
117.61	-73500.0	0.0	-74969.9	12089.2	7440.3	-4164.9	1.159155E 06	-9.889950E 05
117.71	-73500.0	0.0	-74969.9	12089.2	7440.3	-4164.9	1.159155E 06	-9.889950E 05
117.81	-73500.0	0.0	-74969.9	12089.2	7440.3	-4164.9	1.159155E 06	-9.889950E 05
117.91	-73500.0	0.0	-74969.9	12089.2	7440.3	-4164.9	1.159155E 06	-9.889950E 05
117.12	-73500.0	0.0	-74969.9	12089.2	-133.8	-4164.9	1.159155E 06	4.973878E 04
117.22	-73500.0	0.0	-74969.9	12089.2	-133.8	-4164.9	1.159155E 06	4.973878E 04
117.32	-73500.0	0.0	-74969.9	12089.2	-133.8	-4164.9	1.159155E 06	4.973878E 04
117.42	-73500.0	0.0	-74969.9	12089.2	-133.8	-4164.9	1.159155E 06	4.973878E 04
117.52	-73500.0	0.0	-74969.9	12089.2	-133.8	-4164.9	1.159155E 06	4.973878E 04
117.62	-73500.0	0.0	-74969.9	12089.2	-133.8	-4164.9	1.159155E 06	4.973878E 04
117.72	-73500.0	0.0	-74969.9	12089.2	-133.8	-4164.9	1.159155E 06	4.973878E 04
117.82	-73500.0	0.0	-74969.9	12089.2	-133.8	-4164.9	1.159155E 06	4.973878E 04
117.92	-73500.0	0.0	-74969.9	12089.2	-133.8	-4164.9	1.159155E 06	4.973878E 04
117.13	-73500.0	0.0	-74969.9	12089.2	-7708.0	-4164.9	1.159155E 06	1.088472E 06
117.23	-73500.0	0.0	-74969.9	12089.2	-7708.0	-4164.9	1.159155E 06	1.088472E 06
117.33	-73500.0	0.0	-74969.9	12089.2	-7708.0	-4164.9	1.159155E 06	1.088472E 06
117.43	-73500.0	0.0	-74969.9	12089.2	-7708.0	-4164.9	1.159155E 06	1.088472E 06
117.53	-73500.0	0.0	-74969.9	12089.2	-7708.0	-4164.9	1.159155E 06	1.088472E 06
117.63	-73500.0	0.0	-74969.9	12089.2	-7708.0	-4164.9	1.159155E 06	1.088472E 06
117.73	-73500.0	0.0	-74969.9	12089.2	-7708.0	-4164.9	1.159155E 06	1.088472E 06
117.83	-73500.0	0.0	-74969.9	12089.2	-7708.0	-4164.9	1.159155E 06	1.088472E 06
117.93	-73500.0	0.0	-74969.9	12089.2	-7708.0	-4164.9	1.159155E 06	1.088472E 06

TABLE XIX . (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 117

PYLON HOOK LOADS - AERODYNAMIC CONSIDERATIONS

CONFIGURATION 1.0 WITH FINS

COND. NO.	RHO SLUGS/FT**3	VELOCITY KEAS	XCP INCHES	YCP INCHES	ZCP INCHES	ALPHA DEGREES	BETA DEGREES
117.11	0.0023769	260.000	170.210	0.000	-26.000	-8.700	-7.180
117.21	0.0023769	260.000	170.210	0.000	-26.000	-8.700	-7.180
117.31	0.0023769	260.000	170.210	0.000	-26.000	-8.700	-7.180
117.41	0.0023769	260.000	170.210	0.000	-26.000	-8.700	-7.180
117.51	0.0023769	260.000	170.210	0.000	-26.000	-8.700	-7.180
117.61	0.0023769	260.000	170.210	0.000	-26.000	-8.700	-7.180
117.71	0.0023769	260.000	170.210	0.000	-26.000	-8.700	-7.180
117.81	0.0023769	260.000	170.210	0.000	-26.000	-8.700	-7.180
117.91	0.0023769	260.000	170.210	0.000	-26.000	-8.700	-7.180
117.12	0.0023769	260.000	170.210	0.000	-26.000	-8.700	0.000
117.22	0.0023769	260.000	170.210	0.000	-26.000	-8.700	0.000
117.32	0.0023769	260.000	170.210	0.000	-26.000	-8.700	0.000
117.42	0.0023769	260.000	170.210	0.000	-26.000	-8.700	0.000
117.52	0.0023769	260.000	170.210	0.000	-26.000	-8.700	0.000
117.62	0.0023769	260.000	170.210	0.000	-26.000	-8.700	0.000
117.72	0.0023769	260.000	170.210	0.000	-26.000	-8.700	0.000
117.82	0.0023769	260.000	170.210	0.000	-26.000	-8.700	0.000
117.92	0.0023769	260.000	170.210	0.000	-26.000	-8.700	0.000
117.13	0.0023769	260.000	170.210	0.000	-26.000	-8.700	7.180
117.23	0.0023769	260.000	170.210	0.000	-26.000	-8.700	7.180
117.33	0.0023769	260.000	170.210	0.000	-26.000	-8.700	7.180
117.43	0.0023769	260.000	170.210	0.000	-26.000	-8.700	7.180
117.53	0.0023769	260.000	170.210	0.000	-26.000	-8.700	7.180
117.63	0.0023769	260.000	170.210	0.000	-26.000	-8.700	7.180
117.73	0.0023769	260.000	170.210	0.000	-26.000	-8.700	7.180
117.83	0.0023769	260.000	170.210	0.000	-26.000	-8.700	7.180
117.93	0.0023769	260.000	170.210	0.000	-26.000	-8.700	7.180

TABLE XIX (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 117

PYLON HOOK LOADS - INERTIA CONSIDERATIONS

CONFIGURATION 1.0 WITH FINS

COND. NO.	DTV WT. POUNDS	ULTIMATE NX	LOAD NY	FACTOR NZ	XCG INCHES	YCG INCHES	ZCG INCHES
117.11	49000.0	-1.50	0.00	-1.53	167.560	-0.650	-27.350
117.21	49000.0	-1.50	0.00	-1.53	167.560	0.000	-27.350
117.31	49000.0	-1.50	0.00	-1.53	167.560	0.650	-27.350
117.41	49000.0	-1.50	0.00	-1.53	170.210	-0.650	-27.350
117.51	49000.0	-1.50	0.00	-1.53	170.210	0.000	-27.350
117.61	49000.0	-1.50	0.00	-1.53	170.210	0.650	-27.350
117.71	49000.0	-1.50	0.00	-1.53	172.860	-0.650	-27.350
117.81	49000.0	-1.50	0.00	-1.53	172.860	0.000	-27.350
117.91	49000.0	-1.50	0.00	-1.53	172.860	0.650	-27.350
117.12	49000.0	-1.50	0.00	-1.53	167.560	-0.650	-27.350
117.22	49000.0	-1.50	0.00	-1.53	167.560	0.000	-27.350
117.32	49000.0	-1.50	0.00	-1.53	167.560	0.650	-27.350
117.42	49000.0	-1.50	0.00	-1.53	170.210	-0.650	-27.350
117.52	49000.0	-1.50	0.00	-1.53	170.210	0.000	-27.350
117.62	49000.0	-1.50	0.00	-1.53	170.210	0.650	-27.350
117.72	49000.0	-1.50	0.00	-1.53	172.860	-0.650	-27.350
117.82	49000.0	-1.50	0.00	-1.53	172.860	0.000	-27.350
117.92	49000.0	-1.50	0.00	-1.53	172.860	0.650	-27.350
117.13	49000.0	-1.50	0.00	-1.53	167.560	-0.650	-27.350
117.23	49000.0	-1.50	0.00	-1.53	167.560	0.000	-27.350
117.33	49000.0	-1.50	0.00	-1.53	167.560	0.650	-27.350
117.43	49000.0	-1.50	0.00	-1.53	170.210	-0.650	-27.350
117.53	49000.0	-1.50	0.00	-1.53	170.210	0.000	-27.350
117.63	49000.0	-1.50	0.00	-1.53	170.210	0.650	-27.350
117.73	49000.0	-1.50	0.00	-1.53	172.860	-0.650	-27.350
117.83	49000.0	-1.50	0.00	-1.53	172.860	0.000	-27.350
117.93	49000.0	-1.50	0.00	-1.53	172.860	0.650	-27.350

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TABLE XX
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FLAPS) CONDITION 118

PYLON HOOK LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON DTV)

CONFIGURATION 1.0 WITH FINS

COND. NO.	VA POUNDS	VBL POUNDS	VBR POUNDS	VCL POUNDS	VCR POUNDS	DCL POUNDS	DCR POUNDS	SA POUNDS	SCL POUNDS
118.11	23339.5	0.0	0.0	23947.6	22989.3	42594.0	41839.4	2542.6	-9624.6
118.21	23339.5	0.0	0.0	23113.0	23823.9	42561.9	41871.6	2325.7	-9407.8
118.31	23339.5	0.0	0.0	22278.3	24658.5	42529.7	41903.8	2108.9	-9190.9
118.41	22397.9	0.0	0.0	24418.4	23460.1	42594.0	41839.4	2542.6	-9624.6
118.51	22397.9	0.0	0.0	23583.8	24294.7	42561.9	41871.6	2325.7	-9407.8
118.61	22397.9	0.0	0.0	22749.1	25129.3	42529.7	41903.8	2108.9	-9190.9
118.71	21456.4	0.0	0.0	24889.2	23930.8	42594.0	41839.4	2542.6	-9624.6
118.81	21456.4	0.0	0.0	24054.5	24765.5	42561.9	41871.6	2325.7	-9407.8
118.91	21456.4	0.0	0.0	23219.9	25600.1	42529.7	41903.8	2108.9	-9190.9
118.12	23339.5	0.0	0.0	24275.0	22661.9	42223.6	42209.9	46.1	75.0
118.22	23339.5	0.0	0.0	23440.4	23496.5	42191.4	42242.1	-170.8	291.8
118.32	23339.5	0.0	0.0	22605.7	24331.2	42159.2	42274.3	-387.7	508.7
118.42	22397.9	0.0	0.0	24745.8	23132.7	42223.6	42209.9	46.1	75.0
118.52	22397.9	0.0	0.0	23911.1	23967.3	42191.4	42242.1	-170.8	291.8
118.62	22397.9	0.0	0.0	23076.5	24802.0	42159.2	42274.3	-387.7	508.7
118.72	21456.4	0.0	0.0	25216.5	23603.5	42223.6	42209.9	46.1	75.0
118.82	21456.4	0.0	0.0	24381.9	24438.1	42191.4	42242.1	-170.8	291.8
118.92	21456.4	0.0	0.0	23547.3	25272.7	42159.2	42274.3	-387.7	508.7
118.13	23339.5	0.0	0.0	24602.4	22334.5	41853.1	42580.4	-2450.4	9774.6
118.23	23339.5	0.0	0.0	23767.8	23169.1	41820.9	42612.5	-2667.3	9991.5
118.33	23339.5	0.0	0.0	22933.1	24003.8	41788.7	42644.7	-2884.2	10208.3
118.43	22397.9	0.0	0.0	25073.2	22805.3	41853.1	42580.4	-2450.4	9774.6
118.53	22397.9	0.0	0.0	24238.5	23639.9	41820.9	42612.5	-2667.3	9991.5
118.63	22397.9	0.0	0.0	23403.9	24474.6	41788.7	42644.7	-2884.2	10208.3
118.73	21456.4	0.0	0.0	25543.9	23276.1	41853.1	42580.4	-2450.4	9774.6
118.83	21456.4	0.0	0.0	24709.3	24110.7	41820.9	42612.5	-2667.3	9991.5
118.93	21456.4	0.0	0.0	23874.7	24945.4	41788.7	42644.7	-2884.2	10208.3

TABLE XX (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 118

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FINS

COND. NO.	CASE 1				CASE 2			
	V1 POUNDS	V2 POUNDS	V3 POUNDS	V4 POUNDS	V1 POUNDS	V2 POUNDS	V3 POUNDS	V4 POUNDS
118.11	-8019.5	-14472.0	-17261.8	-32313.3	-8964.0	-13525.4	-16235.2	-33342.0
118.21	-7472.2	-15257.5	-15771.0	-33565.9	-8566.9	-14160.3	-14581.1	-34758.2
118.31	-6924.8	-16043.0	-14280.1	-34818.5	-8169.8	-14795.3	-12926.9	-36174.5
118.41	-7296.7	-13749.2	-17945.5	-33075.1	-8241.2	-12802.6	-16918.9	-34103.9
118.51	-6749.4	-14534.7	-16454.7	-34327.7	-7844.1	-13437.6	-15264.8	-35520.1
118.61	-6202.0	-15320.3	-14963.8	-35580.4	-7447.0	-14072.5	-13610.6	-36936.4
118.71	-6574.0	-13026.4	-18629.2	-33837.0	-7518.4	-12079.8	-17602.6	-34865.7
118.81	-6026.6	-13811.9	-17138.4	-35089.6	-7121.3	-12714.8	-15948.5	-36282.0
118.91	-5479.3	-14597.5	-15647.6	-36342.2	-6724.2	-13349.7	-14294.4	-37698.3
118.12	-11194.7	-9966.9	-25454.5	-25450.4	-11025.7	-10136.2	-25638.2	-25266.4
118.22	-10647.3	-10752.4	-23963.7	-26703.0	-10628.6	-10771.2	-23984.1	-26682.7
118.32	-10100.0	-11537.9	-22473.0	-27955.7	-10231.5	-11406.1	-22330.0	-28098.9
118.42	-10471.9	-9244.1	-26138.2	-26212.3	-10302.9	-9413.4	-26321.9	-26028.3
118.52	-9924.5	-10029.6	-24647.4	-27464.9	-9905.8	-10048.4	-24667.8	-27444.5
118.62	-9377.2	-10815.1	-23156.7	-28717.5	-9508.7	-10683.3	-23013.7	-28860.8
118.72	-9749.1	-8521.3	-26822.0	-26974.2	-9580.2	-8690.6	-27005.6	-26790.2
118.82	-9201.8	-9306.8	-25331.2	-28226.8	-9183.0	-9325.6	-25351.5	-28206.4
118.92	-8654.4	-10092.4	-23840.4	-29479.4	-8785.9	-9960.5	-23697.4	-29622.7
118.13	-14369.8	-5461.8	-33647.4	-18587.6	-13087.5	-6747.0	-35041.3	-17190.8
118.23	-13822.5	-6247.3	-32156.6	-19840.2	-12690.4	-7381.9	-33387.2	-18607.0
118.33	-13275.1	-7032.8	-30665.8	-21092.8	-12293.3	-8016.9	-31733.0	-20023.3
118.43	-13647.0	-4739.0	-34331.1	-19349.4	-12364.7	-6024.2	-35725.0	-17952.7
118.53	-13099.7	-5524.5	-32840.3	-20602.0	-11967.6	-6659.2	-34070.9	-19368.9
118.63	-12552.4	-6310.0	-31349.5	-21854.7	-11570.5	-7294.1	-32416.7	-20785.2
118.73	-12924.3	-4016.2	-35014.8	-20111.3	-11641.9	-5301.4	-36408.7	-18714.5
118.83	-12376.9	-4801.7	-33524.0	-21363.9	-11244.8	-5936.4	-34754.6	-20130.8
118.93	-11829.6	-5587.3	-32033.2	-22616.5	-10847.7	-6571.3	-33100.4	-21547.1

TABLE XX (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 118

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FINS

COND. NO.	S1 POUNDS	S2 POUNDS	CASE 1 AND 2 S3 POUNDS	S4 POUNDS	D3 POUNDS	D4 POUNDS
118.11	-1494.8	-1494.8	5035.8	5035.8	-43094.2	-43094.2
118.21	-1320.5	-1320.5	4861.5	4861.5	-43094.2	-43094.2
118.31	-1146.1	-1146.1	4687.2	4687.2	-43094.2	-43094.2
118.41	-1494.8	-1494.8	5035.8	5035.8	-43094.2	-43094.2
118.51	-1320.5	-1320.5	4861.5	4861.5	-43094.2	-43094.2
118.61	-1146.1	-1146.1	4687.2	4687.2	-43094.2	-43094.2
118.71	-1494.8	-1494.8	5035.8	5035.8	-43094.2	-43094.2
118.81	-1320.5	-1320.5	4861.5	4861.5	-43094.2	-43094.2
118.91	-1146.1	-1146.1	4687.2	4687.2	-43094.2	-43094.2
118.12	168.4	168.4	-228.9	-228.9	-43094.2	-43094.2
118.22	342.7	342.7	-403.3	-403.3	-43094.2	-43094.2
118.32	517.1	517.1	-577.6	-577.6	-43094.2	-43094.2
118.42	168.4	168.4	-228.9	-228.9	-43094.2	-43094.2
118.52	342.7	342.7	-403.3	-403.3	-43094.2	-43094.2
118.62	517.1	517.1	-577.6	-577.6	-43094.2	-43094.2
118.72	168.4	168.4	-228.9	-228.9	-43094.2	-43094.2
118.82	342.7	342.7	-403.3	-403.3	-43094.2	-43094.2
118.92	517.1	517.1	-577.6	-577.6	-43094.2	-43094.2
118.13	1831.6	1831.6	-5493.7	-5493.7	-43094.2	-43094.2
118.23	2005.9	2005.9	-5668.0	-5668.0	-43094.2	-43094.2
118.33	2180.3	2180.3	-5842.3	-5842.3	-43094.2	-43094.2
118.43	1831.6	1831.6	-5493.7	-5493.7	-43094.2	-43094.2
118.53	2005.9	2005.9	-5668.0	-5668.0	-43094.2	-43094.2
118.63	2180.3	2180.3	-5842.3	-5842.3	-43094.2	-43094.2
118.73	1831.6	1831.6	-5493.7	-5493.7	-43094.2	-43094.2
118.83	2005.9	2005.9	-5668.0	-5668.0	-43094.2	-43094.2
118.93	2180.3	2180.3	-5842.3	-5842.3	-43094.2	-43094.2

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TABLE XX (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FIN) CONDITION 118

INERTIA AND AIRLOADS - ULTIMATE

INERTIA LOADS - PLUS FWD, LEFT AND DOWN
 AIRLOAD FORCES - PLUS AFT, RIGHT AND UP
 AIRLOAD MOMENTS - PLUS NOSE UP AND NOSE RIGHT

CONFIGURATION 1.0 WITH FIN

COND. NO.	PNX FWD. POUNDS	PNY LEFT POUNDS	PNZ DOWN POUNDS	PX AFT POUNDS	PY RIGHT POUNDS	PZ UP POUNDS	MY NOSE UP INCH-LBS.	MZ NOSE RIGHT INCH-LBS.
118.11	-73500.0	0.0	-74969.9	10933.5	7082.1	-4693.5	1.270769E 06	-9.428593E 05
118.21	-73500.0	0.0	-74969.9	10933.5	7082.1	-4693.5	1.270769E 06	-9.428593E 05
118.31	-73500.0	0.0	-74969.9	10933.5	7082.1	-4693.5	1.270769E 06	-9.428593E 05
118.41	-73500.0	0.0	-74969.9	10933.5	7082.1	-4693.5	1.270769E 06	-9.428593E 05
118.51	-73500.0	0.0	-74969.9	10933.5	7082.1	-4693.5	1.270769E 06	-9.428593E 05
118.61	-73500.0	0.0	-74969.9	10933.5	7082.1	-4693.5	1.270769E 06	-9.428593E 05
118.71	-73500.0	0.0	-74969.9	10933.5	7082.1	-4693.5	1.270769E 06	-9.428593E 05
118.81	-73500.0	0.0	-74969.9	10933.5	7082.1	-4693.5	1.270769E 06	-9.428593E 05
118.91	-73500.0	0.0	-74969.9	10933.5	7082.1	-4693.5	1.270769E 06	-9.428593E 05
118.12	-73500.0	0.0	-74969.9	10933.5	-121.0	-4693.5	1.270769E 06	4.498382E 04
118.22	-73500.0	0.0	-74969.9	10933.5	-121.0	-4693.5	1.270769E 06	4.498382E 04
118.32	-73500.0	0.0	-74969.9	10933.5	-121.0	-4693.5	1.270769E 06	4.498382E 04
118.42	-73500.0	0.0	-74969.9	10933.5	-121.0	-4693.5	1.270769E 06	4.498382E 04
118.52	-73500.0	0.0	-74969.9	10933.5	-121.0	-4693.5	1.270769E 06	4.498382E 04
118.62	-73500.0	0.0	-74969.9	10933.5	-121.0	-4693.5	1.270769E 06	4.498382E 04
118.72	-73500.0	0.0	-74969.9	10933.5	-121.0	-4693.5	1.270769E 06	4.498382E 04
118.82	-73500.0	0.0	-74969.9	10933.5	-121.0	-4693.5	1.270769E 06	4.498382E 04
118.92	-73500.0	0.0	-74969.9	10933.5	-121.0	-4693.5	1.270769E 06	4.498382E 04
118.13	-73500.0	0.0	-74969.9	10933.5	-7324.2	-4693.5	1.270769E 06	1.032827E 06
118.23	-73500.0	0.0	-74969.9	10933.5	-7324.2	-4693.5	1.270769E 06	1.032827E 06
118.33	-73500.0	0.0	-74969.9	10933.5	-7324.2	-4693.5	1.270769E 06	1.032827E 06
118.43	-73500.0	0.0	-74969.9	10933.5	-7324.2	-4693.5	1.270769E 06	1.032827E 06
118.53	-73500.0	0.0	-74969.9	10933.5	-7324.2	-4693.5	1.270769E 06	1.032827E 06
118.63	-73500.0	0.0	-74969.9	10933.5	-7324.2	-4693.5	1.270769E 06	1.032827E 06
118.73	-73500.0	0.0	-74969.9	10933.5	-7324.2	-4693.5	1.270769E 06	1.032827E 06
118.83	-73500.0	0.0	-74969.9	10933.5	-7324.2	-4693.5	1.270769E 06	1.032827E 06
118.93	-73500.0	0.0	-74969.9	10933.5	-7324.2	-4693.5	1.270769E 06	1.032827E 06

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TABLE XX (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 118

PYLON HOOK LOADS - AERODYNAMIC CONSIDERATIONS

CONFIGURATION 1.0 WITH FINS

COND. NO.	RHO SLUGS/FT**3	VELOCITY KEAS	XCP INCHES	YCP INCHES	ZCP INCHES	ALPHA DEGREES	BETA DEGREES
118.11	0.0007699	247.260	170.210	0.000	-26.000	-10.400	-7.550
118.21	0.0007699	247.260	170.210	0.000	-26.000	-10.400	-7.550
118.31	0.0007699	247.260	170.210	0.000	-26.000	-10.400	-7.550
118.41	0.0007699	247.260	170.210	0.000	-26.000	-10.400	-7.550
118.51	0.0007699	247.260	170.210	0.000	-26.000	-10.400	-7.550
118.61	0.0007699	247.260	170.210	0.000	-26.000	-10.400	-7.550
118.71	0.0007699	247.260	170.210	0.000	-26.000	-10.400	-7.550
118.81	0.0007699	247.260	170.210	0.000	-26.000	-10.400	-7.550
118.91	0.0007699	247.260	170.210	0.000	-26.000	-10.400	-7.550
118.12	0.0007699	247.260	170.210	0.000	-26.000	-10.400	0.000
118.22	0.0007699	247.260	170.210	0.000	-26.000	-10.400	0.000
118.32	0.0007699	247.260	170.210	0.000	-26.000	-10.400	0.000
118.42	0.0007699	247.260	170.210	0.000	-26.000	-10.400	0.000
118.52	0.0007699	247.260	170.210	0.000	-26.000	-10.400	0.000
118.62	0.0007699	247.260	170.210	0.000	-26.000	-10.400	0.000
118.72	0.0007699	247.260	170.210	0.000	-26.000	-10.400	0.000
118.82	0.0007699	247.260	170.210	0.000	-26.000	-10.400	0.000
118.92	0.0007699	247.260	170.210	0.000	-26.000	-10.400	0.000
118.13	0.0007699	247.260	170.210	0.000	-26.000	-10.400	7.550
118.23	0.0007699	247.260	170.210	0.000	-26.000	-10.400	7.550
118.33	0.0007699	247.260	170.210	0.000	-26.000	-10.400	7.550
118.43	0.0007699	247.260	170.210	0.000	-26.000	-10.400	7.550
118.53	0.0007699	247.260	170.210	0.000	-26.000	-10.400	7.550
118.63	0.0007699	247.260	170.210	0.000	-26.000	-10.400	7.550
118.73	0.0007699	247.260	170.210	0.000	-26.000	-10.400	7.550
118.83	0.0007699	247.260	170.210	0.000	-26.000	-10.400	7.550
118.93	0.0007699	247.260	170.210	0.000	-26.000	-10.400	7.550

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TABLE XX (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITION 118

PYLON HOOK LOADS - INERTIA CONSIDERATIONS

CONFIGURATION 1.0 WITH FINS

COND. NO.	DTV WT. POUNDS	ULTIMATE NX	LOAD NY	FACTOR NZ	XCG INCHES	YCG INCHES	ZCG INCHES
118.11	49000.0	-1.50	0.00	-1.53	167.560	-0.650	-27.350
118.21	49000.0	-1.50	0.00	-1.53	167.560	0.000	-27.350
118.31	49000.0	-1.50	0.00	-1.53	167.560	0.650	-27.350
118.41	49000.0	-1.50	0.00	-1.53	170.210	-0.650	-27.350
118.51	49000.0	-1.50	0.00	-1.53	170.210	0.000	-27.350
118.61	49000.0	-1.50	0.00	-1.53	170.210	0.650	-27.350
118.71	49000.0	-1.50	0.00	-1.53	172.860	-0.650	-27.350
118.81	49000.0	-1.50	0.00	-1.53	172.860	0.000	-27.350
118.91	49000.0	-1.50	0.00	-1.53	172.860	0.650	-27.350
118.12	49000.0	-1.50	0.00	-1.53	167.560	-0.650	-27.350
118.22	49000.0	-1.50	0.00	-1.53	167.560	0.000	-27.350
118.32	49000.0	-1.50	0.00	-1.53	167.560	0.650	-27.350
118.42	49000.0	-1.50	0.00	-1.53	170.210	-0.650	-27.350
118.52	49000.0	-1.50	0.00	-1.53	170.210	0.000	-27.350
118.62	49000.0	-1.50	0.00	-1.53	170.210	0.650	-27.350
118.72	49000.0	-1.50	0.00	-1.53	172.860	-0.650	-27.350
118.82	49000.0	-1.50	0.00	-1.53	172.860	0.000	-27.350
118.92	49000.0	-1.50	0.00	-1.53	172.860	0.650	-27.350
118.13	49000.0	-1.50	0.00	-1.53	167.560	-0.650	-27.350
118.23	49000.0	-1.50	0.00	-1.53	167.560	0.000	-27.350
118.33	49000.0	-1.50	0.00	-1.53	167.560	0.650	-27.350
118.43	49000.0	-1.50	0.00	-1.53	170.210	-0.650	-27.350
118.53	49000.0	-1.50	0.00	-1.53	170.210	0.000	-27.350
118.63	49000.0	-1.50	0.00	-1.53	170.210	0.650	-27.350
118.73	49000.0	-1.50	0.00	-1.53	172.860	-0.650	-27.350
118.83	49000.0	-1.50	0.00	-1.53	172.860	0.000	-27.350
118.93	49000.0	-1.50	0.00	-1.53	172.860	0.650	-27.350

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TABLE XXI
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FLAPS) CONDITION 119-122

PYLON HOOK LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON DTV)

CONFIGURATION 1.0 WITH FINS

COND. NO.	VA POUNDS	VBL POUNDS	VBR POUNDS	VCL POUNDS	VCR POUNDS	DCL POUNDS	DCR POUNDS	SA POUNDS	SCL POUNDS
119.10	-47196.3	-59775.1	-55708.5	0.0	0.0	-18391.1	-18358.9	-108.4	108.4
119.20	-47196.3	-57741.8	-57741.8	0.0	0.0	-18375.0	-18375.0	0.0	0.0
119.30	-47196.3	-55708.4	-59775.1	0.0	0.0	-18358.9	-18391.1	108.4	-108.4
119.40	-45153.2	-60796.7	-56730.0	0.0	0.0	-18391.1	-18358.9	-108.4	108.4
119.50	-45153.2	-58763.4	-58763.3	0.0	0.0	-18375.0	-18375.0	0.0	0.0
119.60	-45153.2	-56730.0	-60796.7	0.0	0.0	-18358.9	-18391.1	108.4	-108.4
119.70	-43110.1	-61818.2	-57751.6	0.0	0.0	-18391.1	-18358.9	-108.4	108.4
119.80	-43110.1	-59784.9	-59784.9	0.0	0.0	-18375.0	-18375.0	0.0	0.0
119.90	-43110.1	-57751.6	-61818.3	0.0	0.0	-18358.9	-18391.1	108.4	-108.4
120.10	-50627.5	-57992.6	-54059.8	0.0	0.0	18391.1	18358.9	108.4	-108.4
120.20	-50627.5	-56026.2	-56026.2	0.0	0.0	18375.0	18375.0	0.0	0.0
120.30	-50627.5	-54059.8	-57992.7	0.0	0.0	18358.9	18391.1	-108.4	108.4
120.40	-48584.4	-59014.2	-55081.4	0.0	0.0	18391.1	18358.9	108.4	-108.4
120.50	-48584.4	-57047.8	-57047.8	0.0	0.0	18375.0	18375.0	0.0	0.0
120.60	-48584.4	-55081.3	-59014.3	0.0	0.0	18358.9	18391.1	-108.4	108.4
120.70	-46541.2	-60035.8	-56102.9	0.0	0.0	18391.1	18358.9	108.4	-108.4
120.80	-46541.2	-58069.3	-58069.3	0.0	0.0	18375.0	18375.0	0.0	0.0
120.90	-46541.2	-56102.9	-60035.8	0.0	0.0	18358.9	18391.1	-108.4	108.4
121.10	-48911.9	-53221.5	-60546.5	0.0	0.0	879.5	-879.5	5926.6	14653.4
121.20	-48911.9	-51221.6	-62546.4	0.0	0.0	879.5	-879.5	5926.6	14653.4
121.30	-48911.9	-49221.7	-64546.3	0.0	0.0	879.5	-879.5	5926.6	14653.4
121.40	-46868.8	-54319.4	-61491.7	0.0	0.0	842.8	-842.8	5679.1	14900.9
121.50	-46868.8	-52319.6	-63491.6	0.0	0.0	842.8	-842.8	5679.1	14900.9
121.60	-46868.8	-50319.7	-65491.5	0.0	0.0	842.8	-842.8	5679.1	14900.9
121.70	-44825.6	-55417.4	-62436.9	0.0	0.0	806.0	-806.0	5431.5	15148.5
121.80	-44825.6	-53417.5	-64436.7	0.0	0.0	806.0	-806.0	5431.5	15148.5
121.90	-44825.6	-51417.6	-66436.6	0.0	0.0	806.0	-806.0	5431.5	15148.5
122.10	-48911.9	-64546.2	-49221.8	0.0	0.0	-879.5	879.5	-5926.6	-14653.4
122.20	-48911.9	-62546.3	-51221.7	0.0	0.0	-879.5	879.5	-5926.6	-14653.4
122.30	-48911.9	-60546.4	-53221.6	0.0	0.0	-879.5	879.5	-5926.6	-14653.4
122.40	-46868.8	-65491.4	-50319.7	0.0	0.0	-842.8	842.8	-5679.1	-14900.9
122.50	-46868.8	-63491.5	-52319.6	0.0	0.0	-842.8	842.8	-5679.1	-14900.9
122.60	-46868.8	-61491.6	-54319.5	0.0	0.0	-842.8	842.8	-5679.1	-14900.9
122.70	-44825.6	-66436.6	-51417.7	0.0	0.0	-806.0	806.0	-5431.5	-15148.5
122.80	-44825.6	-64436.7	-53417.5	0.0	0.0	-806.0	806.0	-5431.5	-15148.5
122.90	-44825.6	-62436.8	-55417.4	0.0	0.0	-806.0	806.0	-5431.5	-15148.5

TABLE XXI (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITIONS 119-122

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FINS

COND. NO.	CASE 1				CASE 2			
	V1 POUNDS	V2 POUNDS	V3 POUNDS	V4 POUNDS	V1 POUNDS	V2 POUNDS	V3 POUNDS	V4 POUNDS
119.10	41682.1	39075.0	43419.8	42387.4	41356.1	39401.7	43774.2	42032.4
119.20	40589.3	40657.9	40315.2	45001.9	40589.3	40657.9	40315.2	45001.9
119.30	39496.5	42240.8	37210.6	47616.5	39822.5	41914.1	36856.2	47971.6
119.40	40113.7	37506.5	44903.5	44040.6	39787.7	37833.3	45257.8	43685.5
119.50	39020.9	39089.4	41798.9	46655.1	39020.9	39089.4	41798.9	46655.1
119.60	37928.1	40672.4	38694.2	49269.7	38254.1	40345.6	38339.9	49624.8
119.70	38545.3	35938.2	46387.1	45693.9	38219.3	36264.9	46741.4	45338.8
119.80	37452.5	37521.1	43282.5	48308.4	37452.5	37521.1	43282.5	48308.4
119.90	36359.7	39104.0	40177.8	50922.9	36685.7	38777.3	39823.4	51278.0
120.10	54137.2	51522.6	31645.7	29258.9	53811.2	51849.3	32000.0	28903.8
120.20	53101.2	53032.6	28619.1	31811.4	53101.2	53032.6	28619.1	31811.4
120.30	52065.2	54542.8	25592.4	34363.9	52391.2	54216.0	25238.1	34719.0
120.40	52568.8	49954.1	33129.3	30912.1	52242.8	50280.9	33483.6	30557.0
120.50	51532.8	51464.2	30102.7	33464.6	51532.8	51464.2	30102.7	33464.6
120.60	50496.8	52974.4	27076.0	36017.1	50822.8	52647.6	26721.7	36372.2
120.70	51000.4	48385.8	34612.9	32565.3	50674.4	48712.5	34967.2	32210.2
120.80	49964.4	49895.8	31586.3	35117.8	49964.4	49895.8	31586.3	35117.8
120.90	48928.4	51406.0	28559.6	37670.3	49254.4	51079.2	28205.3	38025.4
121.10	35031.8	63091.7	8521.2	59919.6	37986.4	60130.4	5309.7	63137.9
121.20	33967.4	64638.1	5455.6	62503.1	37248.0	61350.2	1889.7	66076.4
121.30	32903.0	66184.6	2390.0	65086.7	36509.6	62570.0	-1530.3	69015.1
121.40	33528.3	61440.1	10094.0	61502.0	36482.8	58478.8	6882.4	64720.2
121.50	32463.9	62986.6	7028.4	64085.5	35744.4	59698.6	3462.5	67658.8
121.60	31399.5	64533.1	3962.7	66669.0	35006.0	60918.4	42.5	70597.4
121.70	32024.8	59788.6	11666.6	63084.4	34979.3	56827.3	8455.1	66302.6
121.80	30960.3	61335.0	8601.0	65667.9	34240.9	58047.1	5035.1	69241.2
121.90	29896.0	62881.6	5535.4	68251.4	33502.5	59266.9	1615.1	72179.8
122.10	60787.5	27505.9	66544.2	11726.7	57181.0	31120.6	70464.4	7798.3
122.20	59723.1	29052.4	63478.6	14310.2	56442.6	32340.4	67044.5	10736.9
122.30	58658.7	30598.9	60413.0	16893.8	55704.1	33560.2	63624.5	13675.6
122.40	59154.2	26020.6	67938.8	13450.7	55547.7	29635.3	71858.9	9522.3
122.50	58089.8	27567.1	64873.2	16034.2	54809.3	30855.1	68439.0	12460.9
122.60	57025.4	29113.6	61807.5	18617.8	54070.8	32074.9	65019.1	15399.5
122.70	57520.9	24535.4	69333.3	15174.7	53914.4	28150.1	73253.5	11246.3
122.80	56456.5	26081.9	66267.7	17758.2	53176.0	29369.8	69833.6	14184.9
122.90	55392.1	27628.4	63202.1	20341.7	52437.6	30589.6	66413.6	17123.5

TABLE XXI (CONTINUED)
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FINS) CONDITIONS 119-122

PYLON LOADS - ULTIMATE

PLUS LOADS - UP, AFT, LEFT (REVERSE SIGN FOR LOADS ON B-52B)

CONFIGURATION 1.0 WITH FINS

COND. NO.	S1 POUNDS	S2 POUNDS	CASE 1 AND 2 S3 POUNDS	S4 POUNDS	D3 POUNDS	D4 POUNDS
119.10	-5.0	-5.0	5.0	5.0	18813.8	18813.8
119.20	-92.2	-92.2	92.2	92.2	18813.8	18813.8
119.30	-179.4	-179.4	179.4	179.4	18813.8	18813.8
119.40	-5.0	-5.0	5.0	5.0	18813.8	18813.8
119.50	-92.2	-92.2	92.2	92.2	18813.8	18813.8
119.60	-179.4	-179.4	179.4	179.4	18813.8	18813.8
119.70	-5.0	-5.0	5.0	5.0	18813.8	18813.8
119.80	-92.2	-92.2	92.2	92.2	18813.8	18813.8
119.90	-179.4	-179.4	179.4	179.4	18813.8	18813.8
120.10	5.0	5.0	-5.0	-5.0	-18813.8	-18813.8
120.20	92.2	92.2	-92.2	-92.2	-18813.8	-18813.8
120.30	179.4	179.4	-179.4	-179.4	-18813.8	-18813.8
120.40	5.0	5.0	-5.0	-5.0	-18813.8	-18813.8
120.50	92.2	92.2	-92.2	-92.2	-18813.8	-18813.8
120.60	179.4	179.4	-179.4	-179.4	-18813.8	-18813.8
120.70	5.0	5.0	-5.0	-5.0	-18813.8	-18813.8
120.80	92.2	92.2	-92.2	-92.2	-18813.8	-18813.8
120.90	179.4	179.4	-179.4	-179.4	-18813.8	-18813.8
121.10	-5912.1	-5912.1	-4623.6	-4623.6	0.0	0.0
121.20	-5912.1	-5912.1	-4623.6	-4623.6	0.0	0.0
121.30	-5912.1	-5912.1	-4623.6	-4623.6	0.0	0.0
121.40	-5713.1	-5713.1	-4822.6	-4822.6	0.0	0.0
121.50	-5713.1	-5713.1	-4822.6	-4822.6	0.0	0.0
121.60	-5713.1	-5713.1	-4822.6	-4822.6	0.0	0.0
121.70	-5514.1	-5514.1	-5021.6	-5021.6	0.0	0.0
121.80	-5514.1	-5514.1	-5021.6	-5021.6	0.0	0.0
121.90	-5514.1	-5514.1	-5021.6	-5021.6	0.0	0.0
122.10	5912.1	5912.1	4623.6	4623.6	0.0	0.0
122.20	5912.1	5912.1	4623.6	4623.6	0.0	0.0
122.30	5912.1	5912.1	4623.6	4623.6	0.0	0.0
122.40	5713.1	5713.1	4822.6	4822.6	0.0	0.0
122.50	5713.1	5713.1	4822.6	4822.6	0.0	0.0
122.60	5713.1	5713.1	4822.6	4822.6	0.0	0.0
122.70	5514.1	5514.1	5021.6	5021.6	0.0	0.0
122.80	5514.1	5514.1	5021.6	5021.6	0.0	0.0
122.90	5514.1	5514.1	5021.6	5021.6	0.0	0.0

TABLE XXI (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FIN) CONDITIONS 119-122

INERTIA AND AIRLOADS - ULTIMATE

INERTIA LOADS - PLUS FWD, LEFT AND DOWN
 AIRLOAD FORCES - PLUS AFT, RIGHT AND UP
 AIRLOAD MOMENTS - PLUS NOSE UP AND NOSE RIGHT

CONFIGURATION 1.0 WITH FIN

COND. NO.	PNX FWD. POUNDS	PNY LEFT POUNDS	PNZ DOWN POUNDS	PX AFT POUNDS	PY RIGHT POUNDS	PZ UP POUNDS	MY NOSE UP INCH-LBS.	MZ NOSE RIGHT INCH-LBS.
119.10	36750.0	0.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
119.20	36750.0	0.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
119.30	36750.0	0.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
119.40	36750.0	0.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
119.50	36750.0	0.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
119.60	36750.0	0.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
119.70	36750.0	0.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
119.80	36750.0	0.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
119.90	36750.0	0.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
120.10	-36750.0	0.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
120.20	-36750.0	0.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
120.30	-36750.0	0.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
120.40	-36750.0	0.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
120.50	-36750.0	0.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
120.60	-36750.0	0.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
120.70	-36750.0	0.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
120.80	-36750.0	0.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
120.90	-36750.0	0.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
121.10	0.0	20580.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
121.20	0.0	20580.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
121.30	0.0	20580.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
121.40	0.0	20580.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
121.50	0.0	20580.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
121.60	0.0	20580.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
121.70	0.0	20580.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
121.80	0.0	20580.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
121.90	0.0	20580.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
122.10	0.0	-20580.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
122.20	0.0	-20580.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
122.30	0.0	-20580.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
122.40	0.0	-20580.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
122.50	0.0	-20580.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
122.60	0.0	-20580.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
122.70	0.0	-20580.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
122.80	0.0	-20580.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01
122.90	0.0	-20580.0	162679.9	0.0	0.0	0.0	0.000000E-01	0.000000E-01

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TABLE XXI (CONTINUED)
PYLON LOADS (ULTIMATE) - METHOD 2
CONFIGURATION 1 (WITH FINS) CONDITIONS 119-122

PYLON HOOK LOADS - AERODYNAMIC CONSIDERATIONS

CONFIGURATION 1.0 WITH FINS

COND. NO.	RHO SLUGS/FT*3	VELOCITY KEAS	XCP INCHES	YCP INCHES	ZCP INCHES	ALPHA DEGREES	BETA DEGREES
119.10	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
119.20	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
119.30	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
119.40	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
119.50	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
119.60	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
119.70	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
119.80	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
119.90	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
120.10	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
120.20	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
120.30	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
120.40	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
120.50	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
120.60	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
120.70	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
120.80	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
120.90	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
121.10	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
121.20	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
121.30	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
121.40	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
121.50	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
121.60	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
121.70	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
121.80	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
121.90	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
122.10	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
122.20	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
122.30	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
122.40	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
122.50	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
122.60	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
122.70	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
122.80	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000
122.90	0.0023769	0.000	170.210	0.000	-26.000	0.000	0.000

TABLE XXI (CONTINUED)
 PYLON LOADS (ULTIMATE) - METHOD 2
 CONFIGURATION 1 (WITH FINS) CONDITIONS 119-122

PYLON HOOK LOADS - INERTIA CONSIDERATIONS

CONFIGURATION 1.0 WITH FINS

COND. NO.	DTV WT. POUNDS	ULTIMATE NX	LOAD NY	FACTOR NZ	XCG INCHES	YCG INCHES	ZCG INCHES
119.10	49000.0	0.75	0.00	3.32	167.560	-0.650	-27.350
119.20	49000.0	0.75	0.00	3.32	167.560	0.000	-27.350
119.30	49000.0	0.75	0.00	3.32	167.560	0.650	-27.350
119.40	49000.0	0.75	0.00	3.32	170.210	-0.650	-27.350
119.50	49000.0	0.75	0.00	3.32	170.210	0.000	-27.350
119.60	49000.0	0.75	0.00	3.32	170.210	0.650	-27.350
119.70	49000.0	0.75	0.00	3.32	172.860	-0.650	-27.350
119.80	49000.0	0.75	0.00	3.32	172.860	0.000	-27.350
119.90	49000.0	0.75	0.00	3.32	172.860	0.650	-27.350
120.10	49000.0	-0.75	0.00	3.32	167.560	-0.650	-27.350
120.20	49000.0	-0.75	0.00	3.32	167.560	0.000	-27.350
120.30	49000.0	-0.75	0.00	3.32	167.560	0.650	-27.350
120.40	49000.0	-0.75	0.00	3.32	170.210	-0.650	-27.350
120.50	49000.0	-0.75	0.00	3.32	170.210	0.000	-27.350
120.60	49000.0	-0.75	0.00	3.32	170.210	0.650	-27.350
120.70	49000.0	-0.75	0.00	3.32	172.860	-0.650	-27.350
120.80	49000.0	-0.75	0.00	3.32	172.860	0.000	-27.350
120.90	49000.0	-0.75	0.00	3.32	172.860	0.650	-27.350
121.10	49000.0	0.00	0.42	3.32	167.560	-0.650	-27.350
121.20	49000.0	0.00	0.42	3.32	167.560	0.000	-27.350
121.30	49000.0	0.00	0.42	3.32	167.560	0.650	-27.350
121.40	49000.0	0.00	0.42	3.32	170.210	-0.650	-27.350
121.50	49000.0	0.00	0.42	3.32	170.210	0.000	-27.350
121.60	49000.0	0.00	0.42	3.32	170.210	0.650	-27.350
121.70	49000.0	0.00	0.42	3.32	172.860	-0.650	-27.350
121.80	49000.0	0.00	0.42	3.32	172.860	0.000	-27.350
121.90	49000.0	0.00	0.42	3.32	172.860	0.650	-27.350
122.10	49000.0	0.00	-0.42	3.32	167.560	-0.650	-27.350
122.20	49000.0	0.00	-0.42	3.32	167.560	0.000	-27.350
122.30	49000.0	0.00	-0.42	3.32	167.560	0.650	-27.350
122.40	49000.0	0.00	-0.42	3.32	170.210	-0.650	-27.350
122.50	49000.0	0.00	-0.42	3.32	170.210	0.000	-27.350
122.60	49000.0	0.00	-0.42	3.32	170.210	0.650	-27.350
122.70	49000.0	0.00	-0.42	3.32	172.860	-0.650	-27.350
122.80	49000.0	0.00	-0.42	3.32	172.860	0.000	-27.350
122.90	49000.0	0.00	-0.42	3.32	172.860	0.650	-27.350

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4.0 REFERENCES

1. Rockwell International Document TFD 66-431, "Structural Analysis for the B-52 Pylon as Modified for the Increased Gross Weight X-15A-2 Airplane", dated 31 August 1966.
2. Boeing Document D-13084, "Technical Data for RB-52B Flight Simulator", dated 1 October 1952.
3. Boeing Document D3-11220-1, "Load and Dynamic Assessment of B-52B-008 Carrier Aircraft for Configuration 1 and 2 Space Shuttle Solid Rocket Booster Decelerator Subsystem Drop Test Vehicles - Volume IV Pylon Load Data Method 2", dated October 24, 1977.